E83-10270

HS 236-0019-1679

NASA-CR-170536

SEPT 1982

THEMATIC MAPPER

(E83-10270) THEMATIC MAPPER FLIGHT MODEL PRESHIPMENT REVIEW DATA PACKAGE. VOLUME 4: APPENDIX. PART F: RADIATIVE COOLER (Santa Barbara Research Center) 310 p HC A14/MF A01 CSCL 14B G3/43

N83-26139

Unclas 00270

Prepared for
GODDARD SPACE FLIGHT CENTER
Greenbelt, Maryland 20771

CONTRACT NAS 5-24200

FLIGHT MODEL
PRESHIPMENT REVIEW
DATA PACKAGE
VOLUME IV - APPENDIX
PART F - RADIATIVE COOLER

Article IV - 3A

HUGHES
HUGHES AIRCRAFT COMPANY

HS 236-0019-1679

THEMATIC MAPPER

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~~PART D - FOCAL PLANE ASSEMBLY DATA~~

PART F RADIATIVE COOLER

Article IV - 3A

HUGHES

HUGHES AIRCRAFT COMPANY
SPACE AND COMMUNICATIONS GROUP

Hughes Ref No. D4596 •

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Appendix F

Radiative Cooler Performance Data

CONTENTS

Part 1	Workmanship Vibration Test Data
Part 2	Thermal Vacuum Test
Part 3	Supplemental Data; Special Test F-010
Part 4	Supplemental Data; Special Test F-008
Part 5	Supplemental Data; Assembly History Record

Radiative Cooler

Performance Data

Part 1

Workmanship Vibration Test

This section contains data taken on the Radiative Cooler in accordance with the Workmanship Test Procedure 16169. Assembly History Record Sheets showing the events during this test are included prior to the data.

SBRC	ASSEMBLY HISTORY RECORD	SHEET 1 OF 22

PART NUMBER	SERIAL OR LOT NUMBER	DRAWING NO.	DRAWING REVISION	REA SOURCE CODE	PREPARED BY	AHR RELEASE DATE	PART II of III
51200	003	51200	E	22-31	D. Dascomb	4 MARCH 82	

ASSEMBLY NAME	APPLICABLE LOTS	RESP ENG APPROVAL	QUALITY APPROVAL	AUTHORIZED AHR SUPPLEMENTS AND DATE OF RECEIPT BY PRODUCTION
RADIATIVE COOLER ASSY, TM (A3A1)			3-2-82	

PL NUMBER	PROJECT NAME	QUALITY CODE	PRODUCTION APPROVAL	PROJ ENG APPROVAL	OTHER	OTHER	1	2	3	4	5	6	7	8
1162	TM	7 PRG				AFQA								

NOTES FOR WORKMANSHIP VIBRATION TESTING.
CAUTION: THIS ASSEMBLY IS STATIC SENSITIVE; REF. DWG. NOTE 24.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	PERFORMED BY INSP	PERFORMED BY DATE	REMARKS
		THIS AHR IS PART TWO OF THREE PARTS. PART TWO IS				
		FOR WORKMANSHIP VIBRATION TESTING.				
		THIS AHR WHEN COMPLETED, WILL SATISFY DRAWING 51200				
		NOTE 9, "PROCESS FINAL ASSEMBLY PER 16189 (VIBRA-				
		TION) USING FIXTURE NO. 73294".				
		QUALITY ASSURANCE SURVEILLANCE SHALL BE PERFORMED	STATIC SENSITIVE ITEM HANDLE PER SPS0113			
		DURING TEST. NOTIFY Q.A. AND AFQA PRIOR TO START-				
		ING TESTS.				
		NOTE: THE RADIATIVE COOLER SHALL BE PREPARED FOR				
		VIBRATION IN AN ULTRA-CLEAN, WHITE GLOVE AREA UNDER				

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SBRC ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	RADIATIVE COOLER ASSY, TM (A3A1)	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
		A LAMINAR FLOW BENCH. THE AREA DESIGNATION IS YEL-				
		LOW. INSPECT, CLEAN AND HANDLE PER 16174, REV A.				
		CAUTION: USE OF THREE PAIRS OF GLOVES IS PREFERRED				
		FOR ASSEMBLY/HANDLING. THE FIRST PAIR SHOULD BE				
		COTTON; THE SECOND SHOULD BE POLYETHYLENE; AND THE				
		THIRD SHOULD BE NYLON PER 16174. SINGLE GLOVE				
		HANDLING IS ACCEPTABLE WHEN THE SURFACES BEING				
		TOUCHED ARE NOT THERMALLY CRITICAL.				
		VIBRATION TESTING MAY BE ACCOMPLISHED IN AN NON-	STATIC SENSITIVE ITEM			
		CLEAN AREA IF THE PROPER BAGGING TECHNIQUES ARE	HANDLE PER SP80113			
		OBSERVED, PER 16189, REV A E04152A, PARA 3.4.2.				
		THE PARAGRAPH CALLOUTS IN THIS DOCUMENT REFER TO				
		SPEC 16189, REV A E04152A, UNLESS OTHERWISE SPECIFIED.				

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SB 0205A DEC 77

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

SHEET 3 of 22

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	RADIATIVE COOLER ASSY, TM (A3A1)	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
		APPLICABLE DOCUMENTS				
		DRAWINGS:				
		001 assy 002 assy				
		51200, REV E WITH E.O.'S 2188A, 3922A, 2162A				
		4266A 4201A				
		52532, REV D WITH E.O.'S 3174A, 4108A 4192A 4224A				
		4278A 4266A				
		SPECIFICATIONS:				
		16189, REV A WITH E.O. 4152A				
		16174, REV A				
		16191, REV A				
		16192, REV E WITH E.O.'s 4088A, 4136A, 4138A				
		FIXTURES:				
		73294, REV B				
		75788, REV B				
		STATIC SENSITIVE ITEM HANDLE PER SP80113				
		STANDARDS:				
		SP80113, REV C				

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SRC ASSEMBLY HISTORY RECORD CONTINUATION SHEET

SHEET 4 of 22

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	RADIATIVE COOLER ASSY, TM (A3A1)	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
20100	22-74	PREPARE COOLER FOR VIBRATION TESTING IN A NONCLEAN	[illegible]		3/?/82	
		AREA, BY BAGGING PER PARA 3.4.2.				
		NOTE: CONNECTOR MOUNTING FIXTURE (75788) MUST BE				
		ATTACHED WITH CONNECTORS MOUNTED, PER AHR 51200,				
		PART I, BEFORE BAGGING.				
20200	51-41	INSPECT ABOVE OPERATION.		[illegible]	[illegible]	STATIC SENSITIVE ITEM HANDLE PER SP80113
20300	22-74	TRANSPORT THE COOLER TO THE VIBRATION LABORATORY	[illegible]		3/25/82	
		PER PARA 3.5.1.				

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	RADIATIVE COOLER ASSY, TM (A3A1)	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
20400	51-13	ATTACH THE VIBRATION FIXTURE (73294) TO THE SHAKER	RH		3-23-82	
		SLIP TABLE, AND TORQUE THE ATTACH BOLTS 250 IN-LBS.				
		MOUNT THE CONTROL AND SAFETY INSTRUMENTATION PER				
		PARA 4.3 ADJUST THE SHAKER SAFETY LEVELS PER PARA				
		4.4. CHECK OUT THE SAFETY CUT-OFF DEVICES. COGNI-				
		ZANT PROJECT DYNAMICIST TO WITNESS.				
20500	22-31	PROJECT DYNAMICIST TO VERIFY ABOVE OPERATION.	RAA		3-28-82	
20600	51-13	CONDUCT INITIAL VIBRATION INPUT EQUALIZATION RUNS	RH		3-23-82	
		PER PARA 4.6, TO OBTAIN AN APPROXIMATION OF THE				
		REQUIRED LATERAL (X AND Y) AXIS INPUT LEVELS.				

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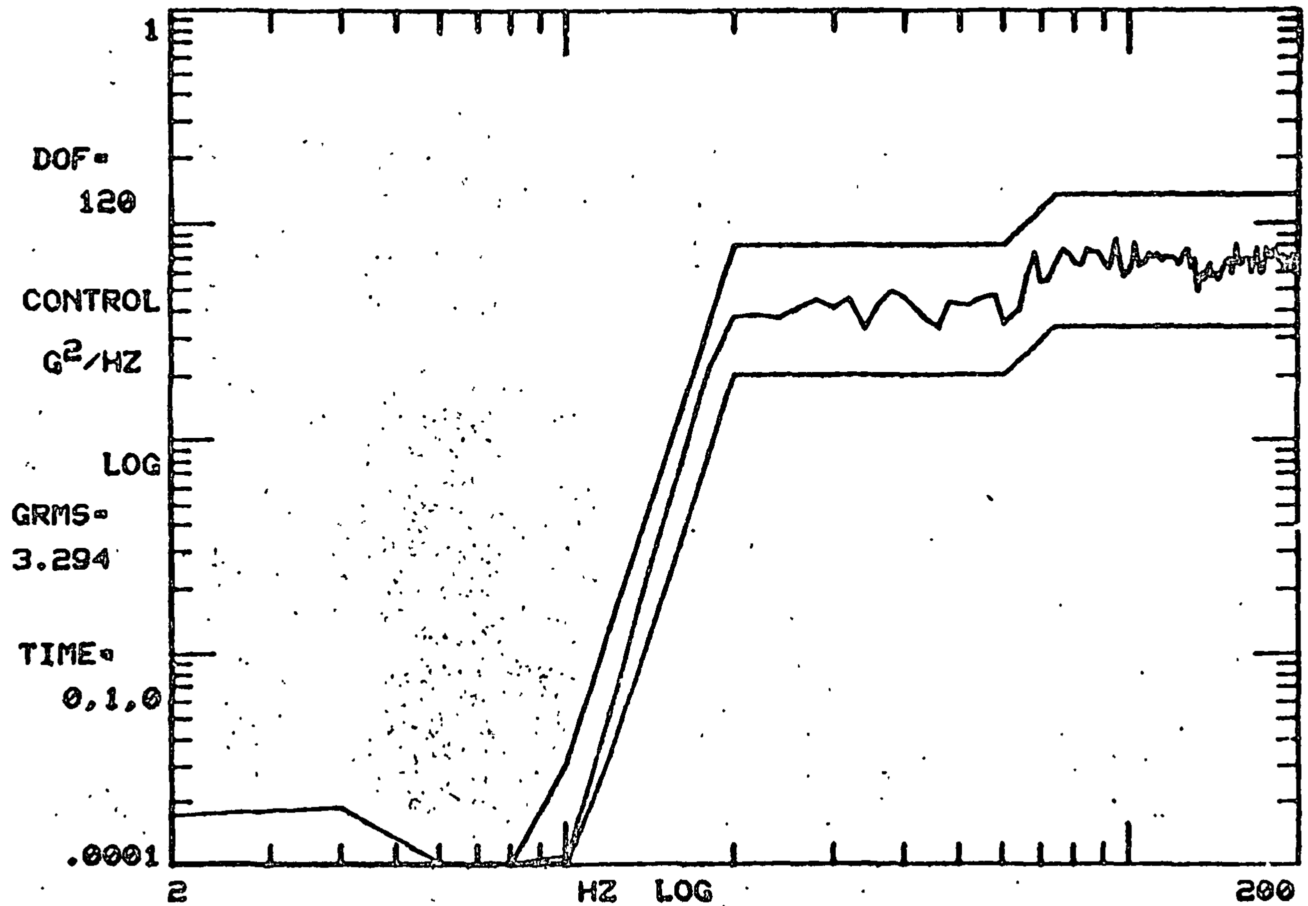

TMCOOL

TM RADIATIVE COOLER WORKMANSHIP VIBRATION

RDA 3-24-82

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SBRC

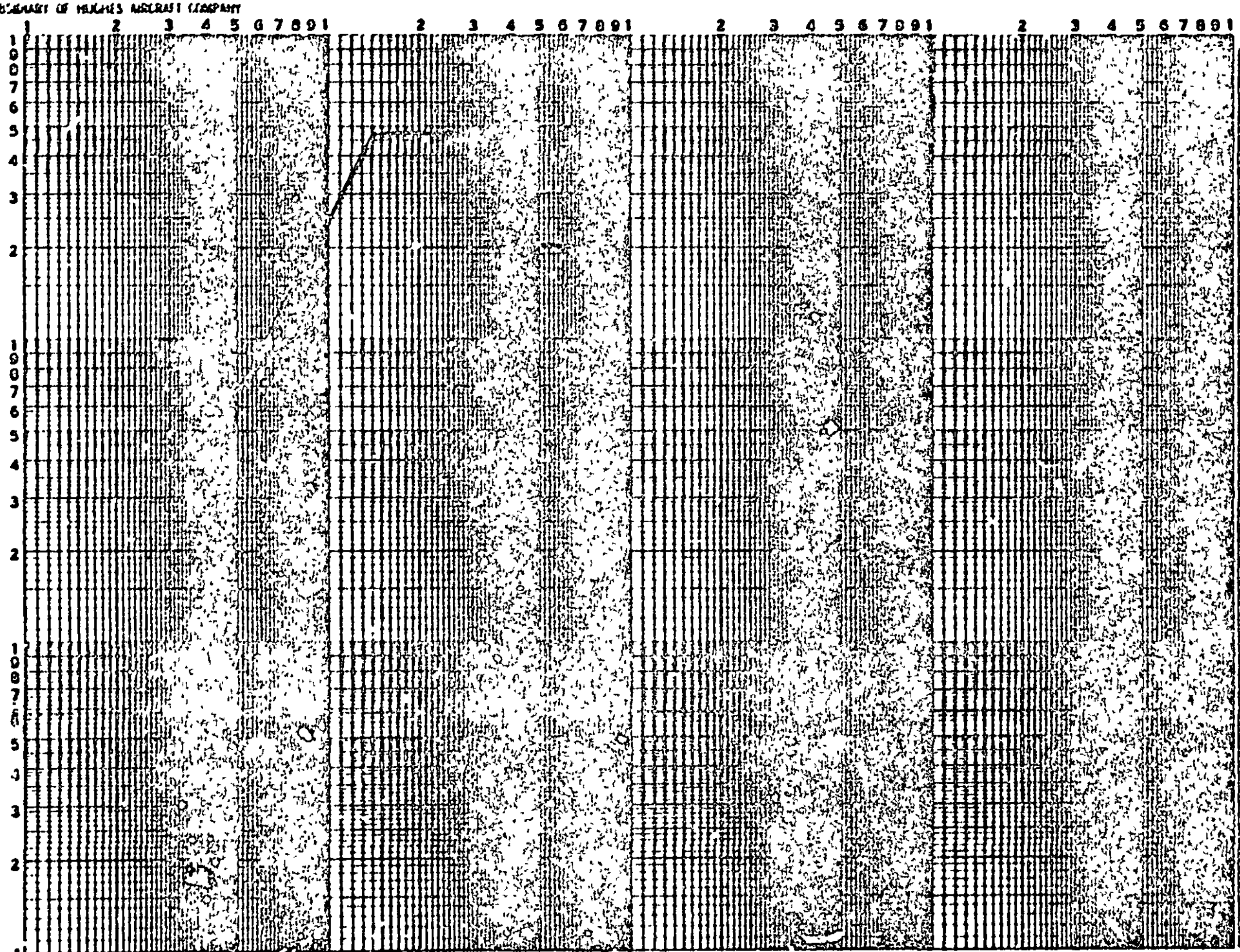
A SUBSIDIARY OF HUGHES AIRCRAFT COMPANY

QUALITY ASSURANCE ENVIRONMENTAL LABORATORY

VIBRATION TEST

SBRC Form No. 0374

☐ Accel (g pk) ☐ Power Spectral Density (g^2/Hz) ☐ Transmissibility



Tape No. ________

Start Feet ________

End Feet ________

Tape Chan	Function
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
VA	
VB	
BLK	
BLU	
RED	
GRN	

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Job No. ________ Item ________ Serial No. ________ Time ________ Date ________ Operator ________ RAA 3-25-82

Axis and Condition ________ Pickup S/N and Location ________ Pickup Sensitivity ________ pC pk / g pk

Overall mv rms ________ = ________ g rms Sweep Speed ________ oct/min ________ min/sweep

Filter ________ Hz BW Input Cal ________ -db Range ________ Hz Output Gain ________ +db Number of Averages ________ at ________ sec/average

PART NO. 51200-2			PART NAME COOLER ASSY	ASSY/LOT SERIAL NO. 51200	QTY
OPER NO.	DATE	OPERATOR OR INSP	COMMENTS, TEST DATA, ETC	DISPOSITION	APPROVAL
20700	3/23/82	1196	Bands 5 and 7 shorting plugs have excessive solder peaks, interference with Vih fitting flange. Will not seat properly To flange.	P.R. Trim excessive solder as required	[illegible]
	3/23/82		Transport the Cooler to the mechanical assy area at EOI for re-configuring of connectors in connector mounting fixture. D.K. 172	RECONFIGURE AS OUTLINED OPER 20710 THRU 20714 3/23/82	172
20710	3-24-82		REMOVE BAGGING MATL TO GAIN ACCESS TO SHORTING PLUGS ON CONNECTORS MOUNTED TO FIXTURE 75788.		177
20711	3/31/82	172	REMOVE CONNECTORS BANDS 5, 6, & 7 AND REINSTALL UNDER FIXTURE 75788 AS SHOWN IN SECTION BB SHEET 3. QA WITNESS Torque to 3 in/lb per Dwg		177

BRC FORM NO 0314 (4 73)

SBRC

ASSEMBLY HISTORY RECORD WORK SHEET

SHEET OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED AHR SUPPLEMENT NO.
51700	003	COOLER ASSY	

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
20712	2274	REQUIRE BAGGING MATL REMOVED	[illegible]	3/24/82		
	5141	IN OPER 20710 PER PARA				
		3.4.2. QA INSPR	I 196	3/24/82		
20713	22-74	TRANSPORT COOLER TO VIB.	[illegible] I 196 / 38	3/24/82		
	5141	LAB PER PARA 3.5.1.				
20714	22-74	RETURN TO OPER 20700	[illegible]	3/24/82		

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SBRC ASSEMBLY HISTORY RECORD CONTINUATION SHEET

SHEET 6 of 22

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	RADIATIVE COOLER ASSY, TM (A3A1)	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
207C0	22-74	INSTALL THE COOLER ON THE SHAKE FIXTURE PER PARA 4.1.AND 4.6, FOR VIBRATION IN THE "X" AXIS. TORQUE SCREWS PER PARA 4.1.		196	3/24/84	SEE COMMENT QA Witness
20800	51-41	NOTIFY PROJECT QUALITY ENGINEER AND AF OF IMPENDING TEST. Q.A. WITNESS TORQUE IN THE ABOVE OPERATION.		196	3/24/84	
		STATIC SENSITIVE ITEM HANDLE PER SP80113				
20900	51-13	CONDUCT FINAL "X" AXIS VIBRATION INPUT EQUALIZATION RUNS PER PARA 4.5, 4.6 AND 4.7.	RLF		3/24/84	
21000	32-31	COGNIZANT PROJECT DYNAMICIST VERIFY ABOVE OPERATION.	RAH		3/24/84	

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SBRC

ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	RADIATIVE COOLER ASSY, TM (A3A1)	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	PERFORMED BY INSP	PERFORMED BY DATE	REMARKS
21100	51-13	CONDUCT "X" AXIS TEST SERIES PER PARA 4.2, 4.6 AND	RLA		3-24-82	
	22-31	4.8. Q.A., REA AND THE COGNIZANT PROJECT DYNAMI-			3/24/82	
	61-41	CIST TO WITNESS. RECORD ANY DISCREPANCIES.		196	3/24/82	
21200	22-31	PROJECT DYNAMICIST VERIFY FINAL VIBRATION INPUT	[illegible]		[illegible]	
		LEVELS, SWEEP RATE AND DURATION WERE PER PARA 4.6				
		AND 4.7.				
21300	22-74	REMOVE THE COOLER FROM THE SHAKE FIXTURE. ROTATE	[illegible]		3/24/82	
		THE COOLER 90° IN EITHER DIRECTION AND REINSTALL ON				
		THE SHAKE FIXTURE PER PARA 4.6 FOR VIBRATION IN				
		THE "Y" AXIS. TORQUE SCREWS PER PARA 4.1.				

STATIC SENSITIVE ITEM
HANDLE PER SP80113

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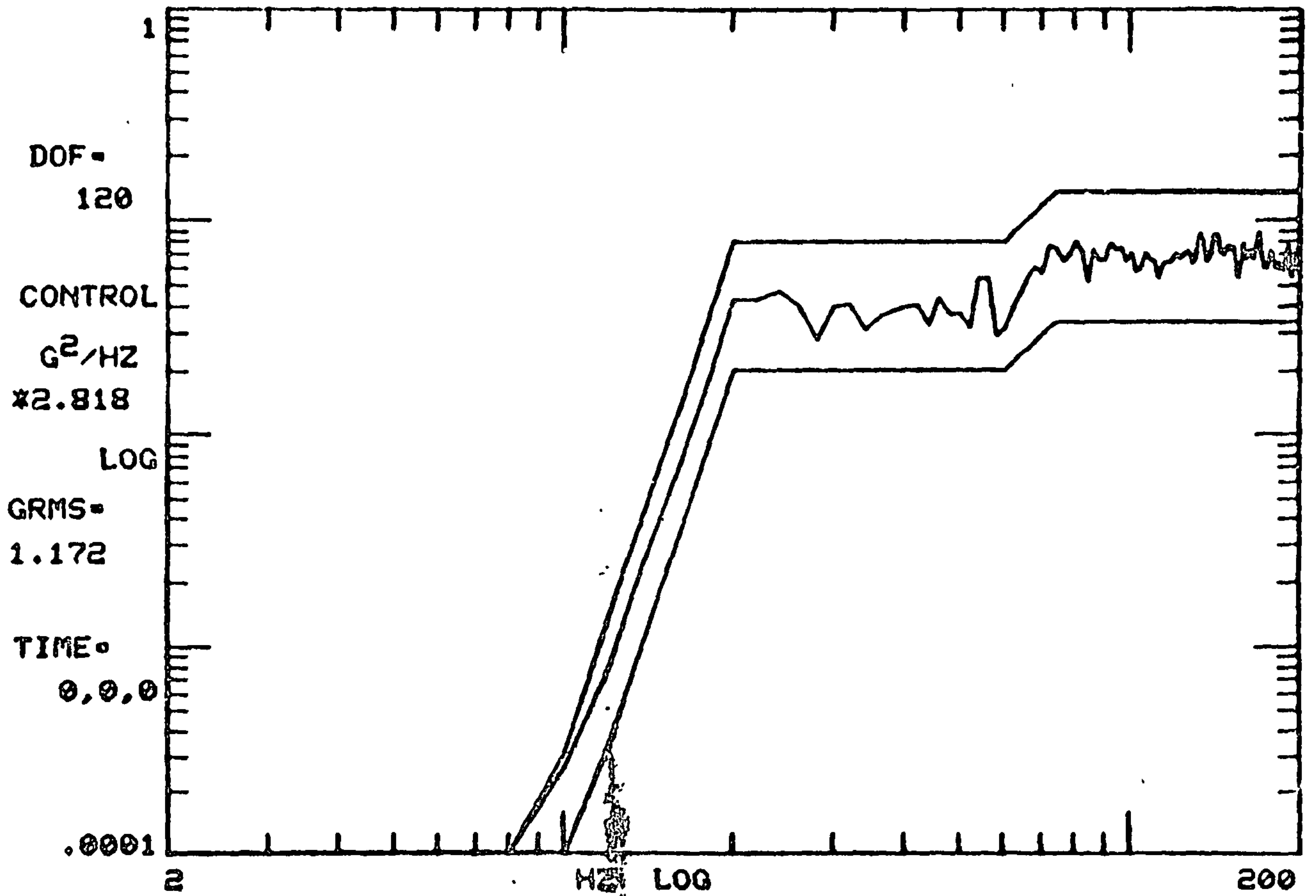
TEST ABORTED -- SEE POST TEST



TMCOOL

TM RADIATIVE COOLER WORKMANSHIP VIBRATION

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SbRC ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	RADIATIVE COOLER ASSY, TM (A3A1)	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	PERFORMED BY INSP	PERFORMED BY DATE	REMARKS
21400	51-41	Q.A. WITNESS THE ABOVE OPERATION AND TORQUE.			3/24/82	
21500	51-13	CONDUCT FINAL "Y" AXIS VIBRATION INPUT EQUALIZATION	RH		3/24/82	
		RUNS PER PARA 4.5, 4.6 AND 4.7.				
		STATIC SENSITIVE ITEM HANDLE PER SP80113				
21600	51-13	CONDUCT "Y" AXIS TEST SERIES PER PARA 4.2, 4.6 AND	RH		3-24-82	
	22-31	4.8. REA AND THE COGNIZANT PROJECT DYNAMICIST TO				
		WITNESS. RECORD ANY DISCREPANCIES.				
21700	22-74	REMOVE THE COOLER FROM THE SHAKE FIXTURE.			3/24/82	

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SBRC **ASSEMBLY HISTORY RECORD CONTINUATION SHEET** SHEET 9 OF 22

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	RADIATIVE COOLER ASSY, TM (A3A1)	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
21800	51-13	REMOVE THE SHAKE FIXTURE FROM THE SHAKER SLIP TABLE	RLd		3-24-82	
		ROTATE THE SHAKER HEAD TO A VERTICAL POSITION, AND				
		INSTALL THE SHAKE FIXTURE ON SHAKER HEAD. TORQUE				
		ATTACH BOLTS TO 250 IN-LBS.				
		STATIC SENSITIVE ITEM HANDLE PER SP80113				
21900	51-41	Q.A. WITNESS TORQUE IN ABOVE OPERATION.		19	3/24/82	
22000	51-13	CONDUCT INITIAL VIBRATION INPUT EQUALIZATION RUNS	RLd		3-24-82	
		PER PARA 4.6, TO OBTAIN AN APPROXIMATION OF THE				
		REQUIRED "Z" AXIS INPUT LEVELS.				

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SANTA BARBARA RESEARCH CENTER

AVOID VERBAL ORDERS

TO D. KUYPER, AFRRO

DATE 24 MARCH 1982

FROM RAY AMADOR

SUBJECT TM F2 COOLER VIBRATION TESTING

BARBARA BURTON IS AUTHORIZED AS CONSULTANT PROJECT DYNAMICIST FOR THE SUBJECT TESTING.

Raymond A. Amador

SBRC FORM 14 0312

SBRC

ASSEMBLY HISTORY RECORD CONTINUATION SHEET

SHEET 10 OF 22

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	RADIATIVE COOLER ASSY, TM (A3A1)	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
22100	22-74	INSTALL THE COOLER ON THE SHAKE FIXTURE PER PARA			3/24/82	
		4.1. THE ROTATIONAL ALIGNMENT OF THE ASSEMBLY ON				
		THE FIXTURE IS OPTIONAL. TORQUE SCREWS PER PARA 4.1				
22200	51-41	NOTIFY PROJECT QUALITY ENGINEER AND AF OF IMPENDING			3/24/82	
		TEST. Q.A. WITNESS TORQUE IN ABOVE OPERATION.				
		STATIC SENSITIVE ITEM HANDLE PER SP00113				
22300	51-13	CONDUCT FINAL "Z" AXIS VIBRATION INPUT EQUALIZATION	RJ		3-24-82	
		RUNS PER PARA 4.5, 4.6 AND 4.7.				
22400	22-31	PROJECT DYNAMICIST TO VERIFY ABOVE OPERATION.	BB		3-24-82	

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	RADIATIVE COOLER ASSY, TM (A3A1)	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
22500	31-13	CONDUCT "Z" AXIS TEST SERIES PER PARA 4.6 AND 4.8.			3-24-82	
	22-31	Q.A., REA AND THE COGNIZANT PROJECT DYNAMICIST TO	BB		3/24/82	
		WITNESS. RECORD ANY DISCREPANCIES.				
22600	22-74	REMOVE THE COOLER FROM THE SHAKE FIXTURE. BE SURE			3/24/82	
		TO MAINTAIN COOLER ATTITUDE PER PARA 3.5.2.				
		STATIC SENSITIVE ITEM HANDLE P R SP80113				
					3/24/82	TRANSPORT ONLY
22700	22-74	TRANSPORT THE COOLER TO A LAMINAR FLOW BENCH PER				
		PARA 3.5.1, MAINTAINING A RADIATOR-UPWARD ATTITUDE			3/24/82	Removed Bags
		PER PARA 3.5.2. REMOVE PROTECTIVE BAG(S) ON FLOW				
		BENCH.				

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

SHEET 12 OF 22

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	RADIATIVE COOLER ASSY, TM (A3A1)	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
22800	51-41	Q.A. SURVEILLANCE OF ABOVE OPERATION.		1 ISG	3/24/82	
22900	22-74	DISASSEMBLE THE CONNECTOR MOUNTING FIXTURE (75788)	[illegible]		3/24/82	
		FROM THE COOLER.				
		CAUTION: DO NOT REMOVE THE STATIC PROTECTIVE CONN-				
		ECTORS FROM BANDS 5 AND 7 FLEX CABLES. MAINTAIN				
		THE COOLER IN A RADIATOR-UPWARD ATTITUDE PER PARA				
		3.5.2.				
		STATIC SENSITIVE ITEM HANDLE PER SP80113				
23000	22-74	DISASSEMBLE THE AMBIENT COVER ASSEMBLY FROM THE	[illegible]		3/24/82	
		COOLER PER PARA 4.9.				
		CAUTION: MAINTAIN THE COOLER IN A RADIATOR-UPWARD				
		ATTITUDE PER PARA 3.5.2.				

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	RADIATIVE COOLER ASSY, TM (A3A1)	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	PERFORMED BY INSP	PERFORMED BY DATE	REMARKS
23100	22-31	INSPECT THE AMBIENT COVER FOR LOOSE PARTICLES PER	[illegible]	I 196	3/24/82	
		PARA 4.10.1, 4.10.2 AND 4.10.3. RECORD ANY ABNORM-				
		ALITIES. NONE [illegible] 3/24 I 52				
		RELIABILITY ENGINEER WITNESS [illegible]	3/24/82			
		QUALITY ENGINEER WITNESS [illegible] 3.24.82 I 78				
		STATIC SENSITIVE ITEM HANDLE PER SP80113				
23200	AF	MGI		[illegible]	3/24/82	
23300	22-74	ROTATE THE COOLER INTO A RADIATOR DOWNWARD ATTITUDE	[illegible]		3/24/82	

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( )RC | ASSEMBLY HISTORY RECORD CONTINUATION SHEET | SHEET 14 OF 22

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	RADIATIVE COOLER ASSY, TM (A3A1)	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
23400	22-35	INSPECT MULTI-LAYER INSULATION FOR LOOSENESS, OR EVIDENCE OF TEARING. RECORD ANY DISCREPANCIES.	[illegible]		3/24/82	None
23500	51-41	Q.A. INSPECT ABOVE OPERATION.		I 196	3/24/82	
23600	22-74	REASSEMBLE THE AMBIENT COVER TO THE COOLER PER PARA 4.11. TORQUE ATTACH SCREWS PER DRAWING 51200.	[illegible]		3/24/82	
23700	51-41	Q.A. WITNESS TORQUE IN ABOVE OPERATION.		I 196	3/24/82	

STATIC SENSITIVE ITEM
HANDLE PER SP80113

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

SHEET 15 · 22

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	RADIATIVE COOLER ASSY, TM (A3A1)	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
23800	22-74	ASSEMBLE 50980 PREAMPLIFIER MODULE ASSEMBLY TO THE	85		3/24/82	Ref to Supp
		RADIATIVE COOLER USING FASTENERS, ITEMS 19 AND 26				#1 prior to
		OF DRAWING 52532, SIX PLACES. ENGAGE THE FLEX CAB-				oper 23900
		LE CONNECTORS.				Wum 3/24/82
						D.K.
		CAUTION: THE BANDS 5 AND 7 STATIC PROTECTIVE CONN-				
		ECTORS SHALL NOT BE REMOVED UNTIL AFTER THE PREAMP-				
		LIFIER MODULE IS BOLTED IN PLACE AND TORQUED. WITH				
		THESE CONNECTORS REMOVED, THE COOLER FLEX CABLE				
		CONNECTORS ARE STATIC SENSITIVE AND MUST BE HANDLED				
		PER SP80113 UNTIL RECONNECTED TO THE MODULE ASSEM-				
		BLY.				
		STATIC SENSITIVE ITEM HANDLE PER SP80113				
23900	22-74	MOUNT CONNECTORS A3J1, A3J2 AND A3J3 INTO THE MOUNT	88		3/24/82	
		ING RING OF ITEM 10 OF DRAWING 51200 USING HARDWARE				
		ITEMS 11, 31 AND 49 OF DRAWING 52532 SHOWN ON SHEET				
		5, VIEW "M".				

SB 0295A DEC 77

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IRC ASSEMBLY HISTORY RECO. CONTINUATION SHEET SHEET 16 22

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	RADIATIVE COOLER ASSY, TM (A3A1)	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
24000	61-41	Q.A. WITNESS ABOVE OPERATION.		196	3/24/82	
		STATIC SENSITIVE ITEM HANDLE PER SP80113				
24100	22-74	PREPARE FOR BENCH COOLER OPERATION AND CFPA ELECTRI-	Wunne		3/25/82	
	22-13	CAL TEST AS FOLLOWS:				
		SET-UP THE RADIATIVE COOLER/PREAMP MODULE ASSEMBLY				
		IN A CLASS 10,000 ENVIRONMENT WITH ITS OPTICAL AXIS				
		APPROXIMATELY HORIZONTAL. CONNECT CFPA TEMPERATURE				
		MONITOR (HS 236-6704) TO A3J4 (COOLER HEATER/SENSOR				
		CABLE CONNECTOR). USE ± 15 VOLT SUPPLY TO CFPA				
		TEMPERATURE MONITOR. MEASURE VOLTAGE BETWEEN COM-				
		MON (SIGNAL RETURN) AND T2-d (SENSOR #2) DIODE				
		VOLTAGE. MEASURE VOLTAGE DROP ACROSS THE DIODE WITH				
		A KEITHLEY 160B DMM TO DETERMINE THE SENSE DIODE				
		FORWARD VOLTAGE. T-2 .459, T-1 .458 CBL 03-25-82	[illegible]		3/25/82	

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[ ]RC ASSEMBLY HISTORY RECORD CONTINUATION SHEET SHEET 1 22

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	RADIATIVE COOLER ASSY, TM (A3A1)	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
24100	Cont.	NOTE: DIODE TEMPERATURE CALIBRATION MAY BE FOUND ON AHR 50956.				
24200	22-74	DISCONNECT THE CFPA/RADIATIVE COOLER THERMAL SHORT BY REMOVING THE 8 FILLISTER HEAD CLAMPING SCREWS (ITEM 22 OF DWG 51200).	[illegible]		3/24/82	
		CAUTION: THE COOLER SPECULAR SHIELD SHALL NOT BE TOUCHED, EVEN WITH GLOVED HANDS.				
		STATIC SENSITIVE ITEM HANDLE PER SP80113				
24300	22-74	SET UP BENCH COOLER CONSOLE PER 16191 PARA 3.4.1, USING NITROGEN GAS CYLINDER.	[illegible]		3/25/82	

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SBRC	ASSEMBLY HISTORY RECORD CONTINUATION SHEET	SHEET 18 OF 22

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF: AHR DATED AHR SUPPLEMENT NO.
51200	003	RADIATIVE COOLER ASSEMBLY, T.M.	

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
24400	22-74	INSTALL THE BENCH TEST COOLER (BTC) IN THE RADIATIVE COOLER			3/24/82	
		PER 16191 PARA 3.4.2. Rev A				
24500	22-74	OPERATE THE BTC PER 16191 Rev A PARA 3.4.3.a, REGULATING BACK			3/24/82	
		PRESSURE TO OBTAIN 95K CFPA TEMPERATURE.				
		STATIC SENSITIVE ITEM HANDLE PER SPB0113				
24600	22-13	CONDUCT THE HEATER/SENSOR OHMIC CHECK (CFPA TEMPERATURE <			3/25/82	Ref Supp #1
		95K) PER 16192 Rev B 40BBA 4113A 4118A PARA 4.5. BAND 6 OHMIC TEST IS PERFORMED ONLY				Sheet 3 prior
		AS A CONFIDENCE CHECK AND ONLY WHEN BAND 6 PREAMPS ARE NOT				to oper. 24600 3/24/82
		CONNECTED. RECORD DATA ON 16192 Rev B 40BBA 4116A 4118A TEST SHEET 2 AND ATTACH TO				D.K. 107
		THIS AHR.				
24700	51-41	Q.A. WITNESS THE ABOVE TEST.		172	3/25/82	

SB 0295A DEC 77

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ASSEMBLY HISTORY RECORD SUPPLEMENT

SHEET 1 OF 4

PART NUMBER	SERIAL OR LOT NUMBER	DRAWING NO.	DRAWING REVISION	CEA SOURCE CODE	PREPARED BY	SUPPLEMENT NO. 1 TO PART II
51200	003	51200	E	22-31	D. Dascomb	AHR DATED 4 MARCH 82

ASSEMBLY NAME: COOLER ASSEMBLY, RADIATIVE

PURPOSE OF SUPPLEMENT - INCORPORATES NEW ASSY DWG REVISION ☐ OR EOs ☐; REWORK ☐; OTHER ☒. EXPLAIN:

APPLICABLE EOs

RESP ENG APPROVAL: D. Huff

QUALITY APPROVAL: 3-24-82 R. F. Diel

PRODUCT ASSURANCE: P. Vacant

PROJ ENG APPROVAL

OTHER: N. C. Davison III

OTHER: AFQA V. Tellen

SUPPLEMENT RELEASE DATE 24 MARCH 82

NOTE TO PRODUCTION - UPON RECEIPT, ENTER SUPPLEMENT NO. AND RECEIPT DATE ON FRONT SHEET OF AHR. INITIAL THE ENTRY.

NOTES: THE PURPOSE OF THIS AHR SUPPLEMENT IS TO PERFORM THE BAND 5 OHMIC CHECK (CFPA TEMP <95K) PER 16189 PARA 4.12.a. REV A 60 4/5/82

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
		NOTE: (1) REVIEW HANDLING AND CLEANLINESS NOTES CALLED				
		OUT ON AHR, 51200, PART II, S/N 003, DATED 4 MARCH 1982.				
		(2) THIS SUPPLEMENT IS TO BE PERFORMED OR ADDED AT THE				
		OPERATION NO. IN NUMERICAL SEQUENCE TO AHR 51200,				
		PART II, S/N 003, DATED 4 MARCH 1982.				

SB 0295C JAN 81

4-7-82

BOOK II 52 4-20-82

4/28/82

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SB C

ASSEMBLY HISTORY RECORD CONTINUATION SHEET

SHEET 2 OF 4

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 1 OF PART II

OPER NO.	S/C NO.	INSTRUCTIONS 3/24/82	PERFORMED BY OPER	INSP	DATE	REMARKS
23801	22-74	REVISE OPERATION ~~23500~~ 23800 OF AHR 51200 PART II, NOT TO INCLUDE			3/24/82	
		CONNECTION OF BAND 6 CONNECTOR TO PREAMP MODULE ASSEMBLY.				
		INSTEAD CONNECT WEAR SAVER ASSEMBLY TO BAND 6 CONNECTOR (P2)				
		AND SECURE TO PREAMP MODULE WITH A FLIGHT APPROVED TAPE.				
23802	51-41	Q.A. WITNESS ABOVE OPERATION.		I 196	3/24/82	
23803	22-74	CONTINUE TO OPERATION 23900 WITHOUT MOUNTING BAND 6 CONNECTOR			3/24/82	
		TO MOUNTING RING.				

SB 0295A DEC 77

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

SHEET 3 OF 4

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 1 of PART II

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	PERFORMED BY INSP	PERFORMED BY DATE	REMARKS
24601	22-13	REVISE OPERATION 24000 OF AHR 51200, PART II, TO INCLUDE THE	[illegible]		3/25/82	
		BAND 6 OHMIC CHECK (CFPA TEMP. < 95K) PER 16189 PARA 4.12. REV A EO 4150A				
		RECORD DATA ON SPEC 16192 DATA SHEETS. REV E [illegible]				
24602	51-41	Q.A. WITNESS ABOVE TEST.	[illegible]	I 172	3/5/82	
24603	51-41	DISENGAGE WEAR SAVER ASSEMBLY FROM BAND 6 CONNECTOR (P2) AND	[illegible]		3/4/82	
		MOUNT THE CONNECTOR TO THE PREAMP MODULE AS CALLED FOR IN				
		OPERATION 23800. SCREWS DO NOT HAVE TO BE TORQUED FOR THIS				
		OPERATION. SCREWS WILL BE TORQUED ON 52532 AHR.				
24604	51-41	Q.A. WITNESS ABOVE OPERATION.	[illegible]	I 172	3/5/82	

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SB 0295A DEC 77

[SP IC]

ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 1 of PART II

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	PERFORMED BY INSP	PERFORMED BY DATE	REMARKS
24605	22-31	RETURN TO AHR 51200, PART II, S/N 003, OPERATION 2476 AND	[signature]		3/24/82	
		RESUME BLACKBODY ACCEPTANCE TESTING.				
24606	51-41	REVIEW THIS AHR FOR COMPLETENESS AND ROUTE TO PROJECT QUALITY	[signature]	172	3/25/82	
		ENGINEER.				

SB 0295A DEC 77

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ROOM TEMP 3/6
OHMIC CHECK

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[illegible]T SHEET 2

HEATER/SENSOR AND BAND 6 OHMIC CHECK

CFPA SERNO 201 DATE MARCH 25, 1982

T1 READING ________ VOLTS= Ambient °K

T2 READING ________ VOLTS= Ambient °K

TEST ENGINEER [signature]

BAND 6

CHANNEL	LIMITS OHMS	READING	COMMENTS
1	25 TO 100	25.7 Ω	
2	25 TO 100	29.6 Ω	
3	25 TO 100	25.7 Ω	
4	25 TO 100	28.4 Ω	

HEATER / SENSOR

	LIMITS OHMS	READING	COMMENTS
T1	.25K TO 2.0K		
T2	.25K TO 2.0K		
(HTR) CFP	3.5K ± 500		
TSB	10 TO 200		

DESIGN ENGINEERING [signature] III

METERS USED MODEL SERNO CAL DUE DATE

1) 8020A FLUKE 880257 8 Sept. 82

2)

3)

I/172 3/27/82 TEST ONLY 3/29/82

TITLE	SIZE A	CODE IDENT NO 1-323	16192
SCALE	REV	SHEET 29	

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POST VIBRATION TEST
PER AHR 51200 PAGE 18
OPERATION 24600

TEST SHEET 2

HEATER/SENSOR AND BAND 6 OHMIC CHECK

CFPA SERNO 201 DATE 03-25-82

T1 READING .9697 VOLTS=______°K

T2 READING .9690 VOLTS=______°K

TEST ENGINEER C. R. Lane

BAND 6

CHANNEL	LIMITS OHMS	READING	COMMENTS
1	25 TO 100	41.4 Ω	
2	25 TO 100	40.0 Ω	
3	25 TO 100	40.5 Ω	
4	25 TO 100	39.3 Ω	

HEATER / SENSOR

	LIMITS OHMS	READING	COMMENTS
T1	.25K TO 2.0K	1.82 K	
T2	.25K TO 2.0K	1.83 K	
(HTR) CFP	3.5K ± 500	3.27K	
TSB	10 TO 200	51.4 Ω	

DESIGN ENGINEERING [signature]

METERS USED	MODEL	SERNO	CAL DUE DATE
	1) FLUKE 8020A	M-48	8 SEPT 82
	2) KEITHLEY 179TRMS	801345	9 APR 82
	3)		

I 172 3/25/82

TEST ONLY RB 3/25/82

TITLE

SIZE	CODE IDENT NO	NUMBER
A	11323	16192

SCALE REV D SHEET 29

POST VIBRATION TEST
PER A+R 51200
PAGE 19 OPERATION 24800

TEST SHEET 12
SHEET 1 OF 3

[illegible]/NOISE

CFPA SERNO 201 BAND 5 PREAMP SERNO 201 DATE: MARCH 26, 19

BAND 5 POST AMP SERNO 201

T1 READING .9689 VOLTS= 94 °K

T2 READING .9682 VOLTS= 94.4 °K

TEST ENGINEER C. [illegible]

NOTE AFTER CH. 7 NOISE READING B/O BALANCE V. CABLE GROUNDED THRU 9/0 TAL [illegible] CONNECTOR MATED & POWER GROUND TIED TO RAD COOLER HOUSING.

BAND 5 50mV 500µV

CHANNEL	PREAMP OUTPUT			POST AMP OUTPUT			CALCULATIONS	
			BROAD BAND NOISE	@ ≈ 1KHz		BROAD BAND NOISE	MAX $\leq 5.8 \times 10^{-12}$ NEP λ	MIN $\geq .8$ A/W Rλ
	SIGNAL	NOISE		SIGNAL	NOISE			
1	.79 V	.44 V	.44 V					
2	.79 V	.40 V	.40 V					
3	.78 V	.55 V	.55 V					
4	.78 V	.42 V	.42 V					
5	.76 V	.42 V	~~.44~~	.42 V				
6	.81 V	.43 V	~~.44~~	.43 V				
7	.78 V	.41 V	.41 V					
8	.78 V	.43 V	.43 V					
9	.73 V	.45 V	.45 V					
10	.71 V	.59 V	.59 V					
11	.75 V	.43 V	.43 V					
12	.79 V	.45 V	.45 V					
13	.73 V	.43 V	.43 V					
14	.67 V	.41 V	.41 V					
15	.75 V	.48 V	.48 V					
16	.76 V	.41 V	.41 V					

N/A

POST AMP GAIN= N/A
APERTURE TO FILTER= N/A
DETECTOR AREA= N/A
H_0^{∞} = N/A
BLACKBODY TO λ= N/A
BLACKBODY TEMPERATURE= N/A
DESIGN ENGINEER [illegible] III

FEEDBACK RESISTOR= N/A
NOISE CORRECTION FACTOR
BANDWIDTH= PRE AMP ONLY
APERTURE DIAMETER= 0.100 in
SCOPE GAIN=
Q.A. ENGINEER [illegible] (177) 3-27-82

TEST ONLY RD 3/[illegible]

[illegible] III

TITLE	SIZE	CODE IDENT NO	NUMBER
ORIGINAL PAGE IS OF POOR QUALITY	A	11323	16192
SCALE		REV	SHEET

POST VIBRATION TEST PER
AHR 51200 PAGE 19
~~SHEET~~ OPERATION 24800

TEST SHEET 12
SHEET 2 OF 3

SIGNAL/NOISE

CFPA SERNO 201 BAND 6 PREAMP SERNO 101 DATE: MARCH 26, 198

BAND 6 POST AMP SERNO 201

T1 READING .9691 VOLTS= 94 °K

T2 READING .9681 VOLTS= 94.4 °K

TEST ENGINEER C. P. L

BAND 6 — X98.6 5mV; X2500 200µV; X2500 200µV

CHANNEL	PREAMP OUTPUT			POST AMP OUTPUT			CALCULATIONS	
	SIGNAL	NOISE	BROAD BAND NOISE	SIGNAL	NOISE	BROAD BAND NOISE	MAX $\leq .93 \times 10^{-10}$ NEP λ	MIN $\geq$ 3200 V/W Rλ
1	1.82V	.65	.65V	NA	NA	NA	NA	NA
2	1.40V	~~.65~~ .58	.58V					
3	1.87V	.95	.95V					
4	1.31V	.65	.65V					

$\underbrace{\text{SIGNAL}}_{\text{NO APERTURE}}$

POST AMP GAIN =
APERTURE TO FILTER =
DETECTOR AREA=
H_0^{∞} =
BLACKBODY TO λ=
BLACKBODY TEMPERATURE =

PREAMP GAIN =
NOISE CORRECTION FACTOR
BANDWIDTH =.
APERTURE DIAMETER=
SCOPE GAIN=

EQUIPMENT USED MODEL SERNO CAL DUE DATE

1)
2)
3)
4)
5)
6)
7)
8)

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QA ENGINEER [signature] 3/27/84

TEST ONLY 3/...

DESIGN ENGINEER [signature] III

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
SCALE		REV	SHEET

POST VIBRATION TEST
PER AHR 51200
PAGE 19 OPERATION 24800

TEST SHEET 12
SHEET 3 OF 3

...L/NOISE

...A SERNO 201 BAND 7 PREAMP SERNO 201 DATE: MARCH 26, 1982

...D 7 POST AMP SERNO 201

... READING .9689 VOLTS= 94 °K

...2 READING .9681 VOLTS= 94.4 °K

TEST ENGINEER [signature]

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...AND 7 50 mV X1003 500μV X1003 500μV

CHANNEL	PREAMP OUTPUT			POST AMP OUTPUT			CALCULATIONS	
	SIGNAL	NOISE	BROAD BAND NOISE	@ ≈ 1KHz SIGNAL	@ ≈ 1KHz NOISE	BROAD BAND NOISE	MAX $\leq 4.8 \times 10^{-12}$ W NEP λ	MIN ≥1.0 A/W Rλ
1	.70 V	.48	.48 V					
2	.67 V	.48	.48 V					
3	.67 V	.48	.48 V					
4	.64 V	-.45	.45 V					
5	.69 V	.42	.42 V					
6	.64 V	.42	.42 V					
7	.69 V	.48	.48 V		N/A			
8	.65 V	.49	.49 V					
9	.66 V	.44	.44 V					
10	.65 V	.53	.53 V					
11	.64 V	.44	.44 V					
12	.67 V	.47	.47 V					
13	.64 V	.48	.48 V					
14	.68 V	.49	.49 V					
15	.62 V	.42	.42 V					
16	.63 V	.44	.44 V					

60Hz NOISE ON CH.

POST AMP GAIN = N/A
APERTURE TO FILTER =
DETECTOR AREA =
H_0^{∞} =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =
DESIGN ENGINEER [signature]

FEEDBACK RESISTOR = N/A
NOISE CORRECTION FACTOR N/A
BANDWIDTH = PREAMP ONLY
APERTURE DIAMETER = 0.10 inches
SCOPE GAIN = 9.84
QA ENGINEER [signature]

TEST ONLY NB 3/26/82

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV	

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TEST SHEET 12
SHEET 2 OF 3

SIGNAL/NOISE

CFPA SERNO 201 BAND 6 PREAMP SERNO 101 DATE: MARCH 26, 1982

BAND 6 POST AMP SERNO 201

T1 READING ____ VOLTS= ____ °K

T2 READING .9684 VOLTS= ____ °K

TEST ENGINEER N. C. DAVISON, III

BAND 6

CHANNEL	PREAMP OUTPUT SIGNAL (X 98.6, 5mV)	NOISE (X 200μV)	BROAD BAND NOISE (X 200μV)	POST AMP OUTPUT SIGNAL (X 4.95, 100mV)	NOISE (X 98.6, 5mV)	BROAD BAND NOISE (X 98.6, 5mV)	CALCULATIONS MAX ≤.93x10^-10 NEP λ	MIN ≥3200V/W R λ
1	1.15V	4.37mV/√Hz	.65V	1.03V	3.62mV/√Hz	.42V	N/A	
2	.824V	3.59mV/√Hz	.61V	1.04V	5.27mV/√Hz	.57V		
3	1.14V	4.71mV/√Hz	1.04V	1.02V	8.53mV/√Hz	.75V		
4	.777V	4.15mV/√Hz	.70V	.984V	4.00mV/√Hz	.67V		

POST AMP GAIN =
APERTURE TO FILTER =
DETECTOR AREA =
H_0^∞ =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =

PREAMP GAIN =
NOISE CORRECTION FACTOR
BANDWIDTH =.
APERTURE DIAMETER =
SCOPE GAIN =

EQUIPMENT USED MODEL SERNO CAL DUE DATE

1)

AP. TO FACE OF PREAMPS = 2.20

2)
3)
4)
5)
6)
7)

QA ENGINEER [signature] 3/26/82

TEST ONLY 3/26 RD

DESIGN ENGINEER Neill C. Davison III

SIZE	CODE IDENT NO	NUMBER
A	11323	16192

SB..C ASSEMBLY HISTORY RECORD CONTINUATION SHEET

SHEET 19 OF 2..

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	RADIATIVE COOLER ASSEMBLY, T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
		NOTE: NOTIFY Q.A. AND AF PRIOR TO PERFORMING OPERATION				
		24800.				
24800	22-13	CONDUCT THE BLACKBODY ACCEPTANCE (CFPA TEMPERATURE < 95K)	[illegible]		3/26/82	
		BANDS 5, 6 AND 7, TESTS PER 16189, PARA 4.12.2 AND 16192,				
		PARA 4.16 AND 4.17. RECORD DATA ON 16192, TEST SHEET 12,				
		SHEETS 1 AND 3 AND ATTACH TO THIS AHR. (BROAD BAND NOISE				
		AND NARROW BAND SIGNAL ONLY).				
		REPEAT ALL TESTS ABOVE EXCEPT SUBSTITUTE A QUARTZ HALOGEN	[illegible]		3/26/82	
		LAMP INSTEAD OF A BLACKBODY.				
		STATIC SENSITIVE ITEM HANDLE PER SP80113				
24900	51-41	Q.A. WITNESS THE ABOVE TEST.			3/26/82	
25000	21-23	CFPA REA TO REVIEW TEST DATA FROM OPERATIONS ABOVE. REVIEW	[illegible]		3/26/82	
		TEST SHEETS 2, 12 AND 15 OF SPEC 16192, REV D .				

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SP 0205A DEC 77

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

SHEET 20 22

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	RADIATIVE COOLER ASSY, TM (A3A1)	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
25100	22-74	SHUT DOWN BENCH TEST COOLER (BTC) PER 16191,	Wunr		3/26/82	
		REV A , PARA 3.4.5.a.				
25200	22074	DISCONNECT BTC VACUUM LINE, REMOVE CONNECTING MANI-	Wunr		3/27/82	
		FOLL, REMOVE VACUUM SHROUD, AND REMOVE TEST COVER				
		PER 16191 PARA 3.4.5.b THROUGH e.				
		NOTE: DISCONNECT AND REMOVE FROM THE RADIATIVE				
		COOLER ONLY, AND NOT FROM THE BTC CONSOLE, SINCE				
		THE BTC MUST BE RECONNECTED AFTER THERMAL SHORTING				
		SCREWS HAVE BEEN INSTALLED.				
		STATIC SENSITIVE ITEM HANDLE PER SP80113				

SB 0295A DEC 77

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ASSEMBLY HISTORY RECOI. CONTINUATION SHEET

SHEET 21 22

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	RADIATIVE COOLER ASSY, TM (A3A1)	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
25300	22-74	COMPLETE BENCH TEST SHUT DOWN PER PARA 3.4.5, SPEC	Winn		3/27/82	
		16191, REV A . TORQUE SHORTING SCREWS, ITEM				
		22, PER NOTE 5, OF DRAWING 51200.				
25400	61-41	Q.A. WITNESS TORQUE OF 8 FILLISTER HEAD SCREWS IN		I 172	3/21/82	
		ABOVE OPERATION.				
		STATIC SENSITIVE ITEM ~~HANDLE PER SP30112~~				
25500	22-74	VERIFY THE PROPER THERMAL CONDUCTANCE OF THE CFPA/	Winn		3/21/82	.4665 Volts To Start
		RADIATIVE COOLER THERMAL SHORT PER 16191 PARA 3.4.				.4700 Max change
		5.g THROUGH m.				3/27/82 I 172
25600	61-41	Q.A. AND COOLER KEA TO REVIEW AHR FOR COMPLETENESS.			3/27/82	
	22-31			I 172	3/27/82	

SB 0295A DEC 77

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[,RC]   ASSEMBLY HISTORY RECOR CONTINUATION SHEET   SHEET 22 22

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	RADIATIVE COOLER ASSY, TM (A3A1)	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
25700	AF	MCI FINAL			3/27/80	PART II ONLY
		STATIC SENSITIVE ITEM HANDLE PER SP80113				
25800	22-73	ROUTE COMPLETED AHR AND ATTACHED DATA SHEETS TO				
		PROJECT QUALITY ENGINEER. ASSEMBLY TO REMAIN IN A				
		CLASS 10,000 CLEAN AREA.				
		ADVANCE TO PART 3 OF THIS AHR.				

SB 0295A DEC 77

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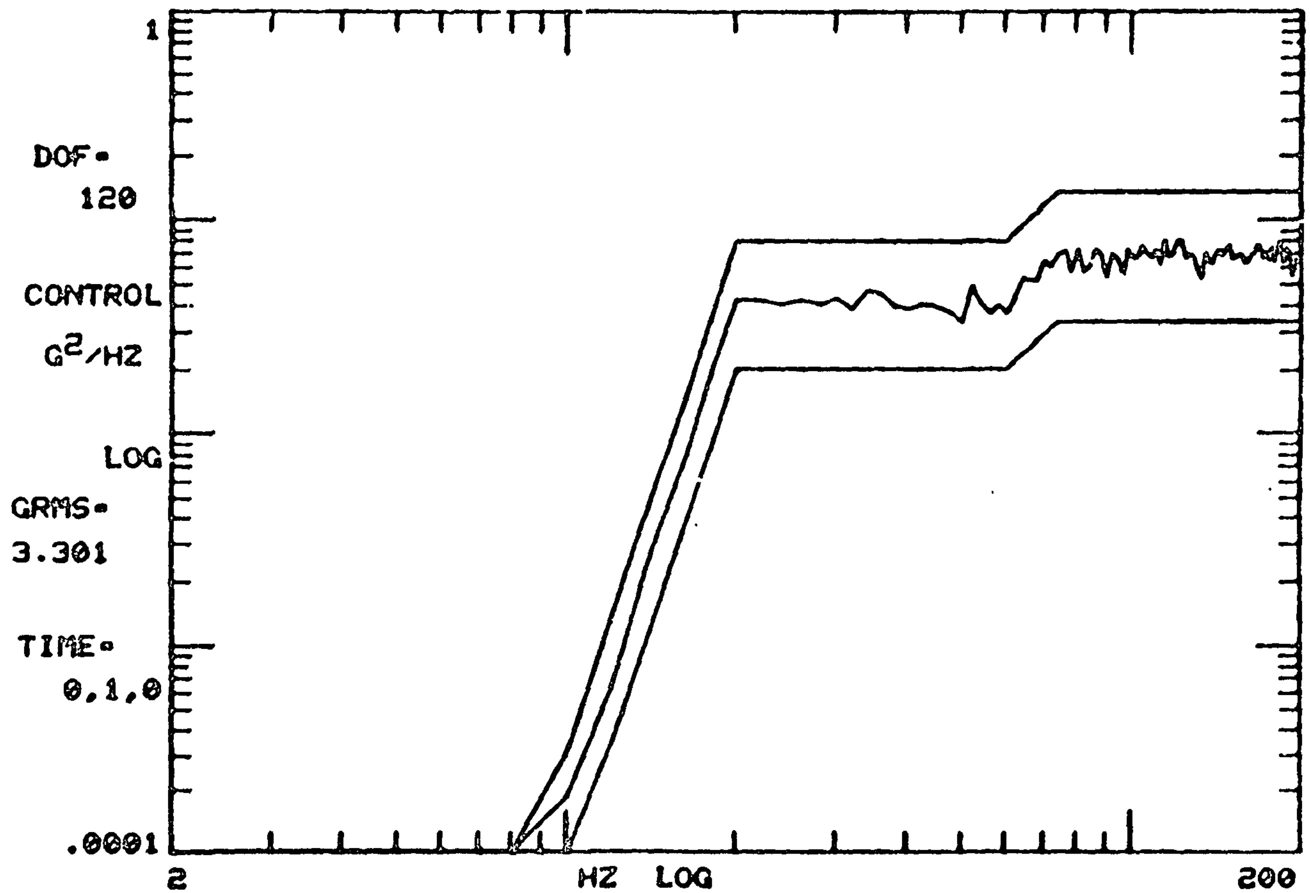

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TMCOOL

TM RADIATIVE COOLER WORKMANSHIP VIBRATION

Z AXIS

3-24-82

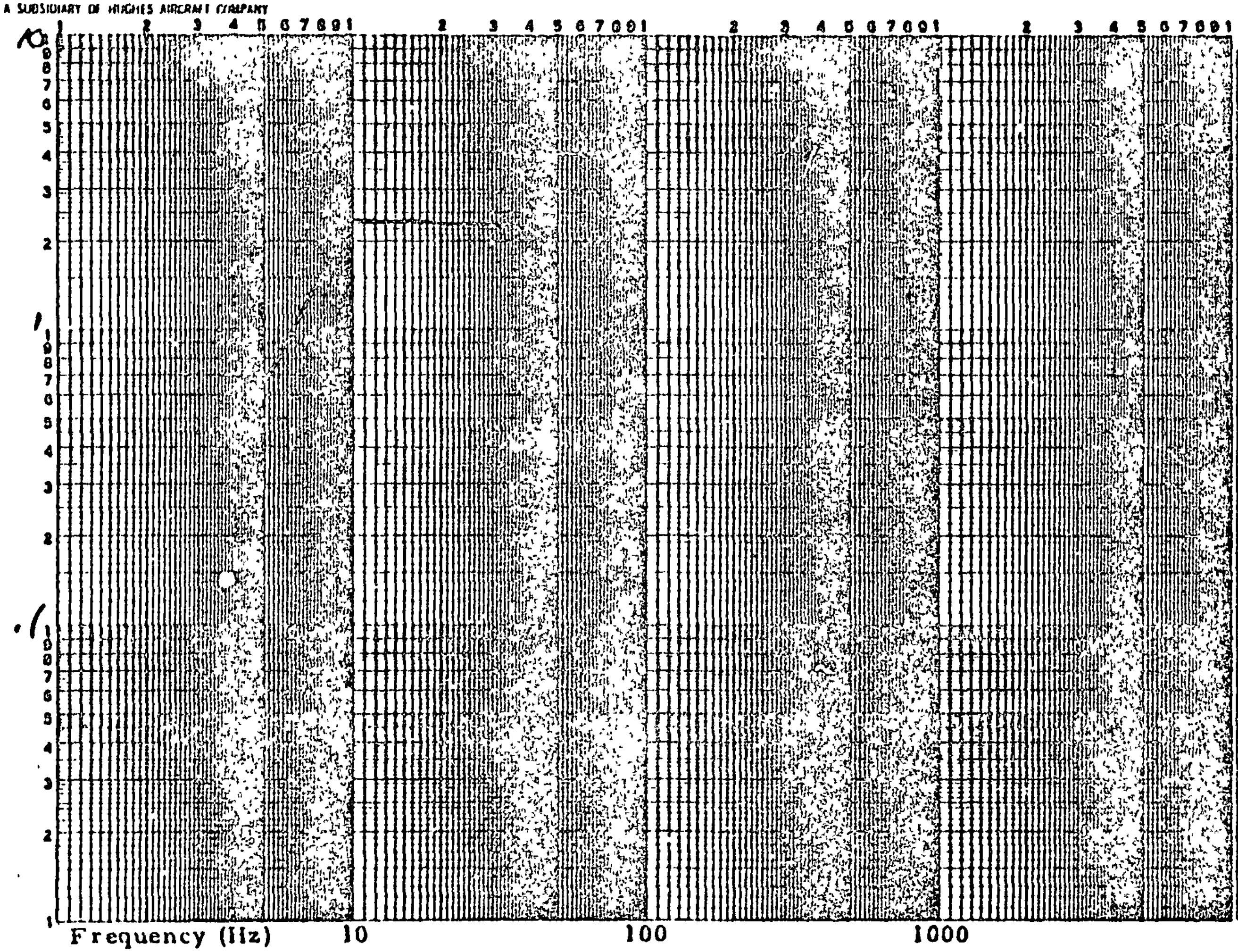
BB

3/24/82

SBRC
A SUBSIDIARY OF HUGHES AIRCRAFT COMPANY

QUALITY ASSURANCE ENVIRONMENTAL LABORATORY VIBRATION TEST

SBRC Form No. 0374



Tape No.	
Start Feet	
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Tape Chan	Function
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VA	
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BLK	
BLU	
RED	
GRN	

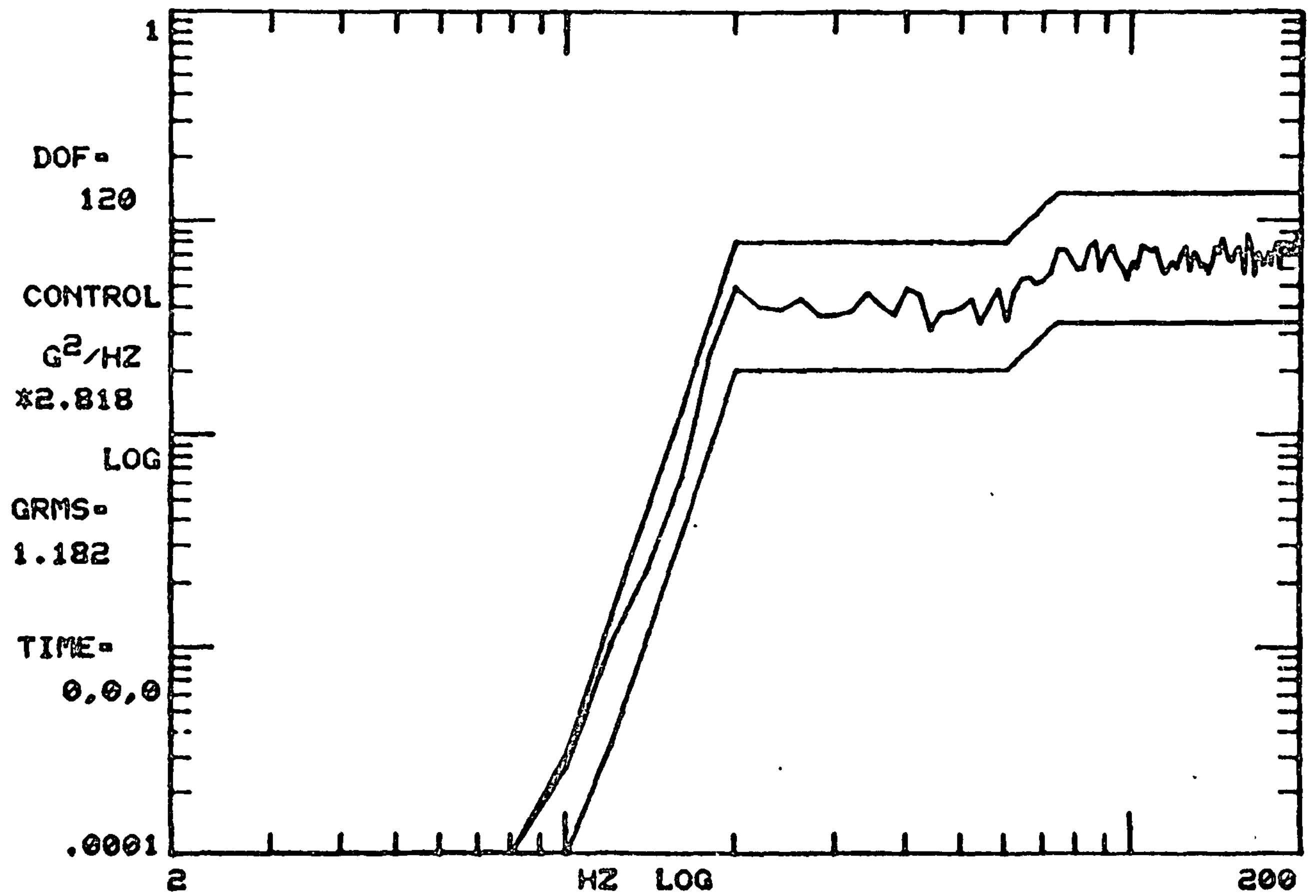
Job No. 82281 Item TM Rad Cooler Serial No. 003 Time 1530 Date 3-24-87 Operator R. Hogg

Axis and Condition Z axis Pickup S/N and Location S/N 1161 [illegible] Pickup Sensitivity 10.13 pC pk/g pk

Overall mv rms ________ = ________ g rms Sweep Speed 4 oct/min 1.1 min/sweep

Analyzer Filter ________ Hz BW Input Cal ________ -db Range ________ Hz Output Gain ________ +db Number of Averages ________ at ________ sec/average

BB



TMCOOL

TM RADIATIVE COOLER WORKMANSHIP VIBRATION

Z AXIS

-9 db EQUALIZATION

3-24-82

BB

3/24/82

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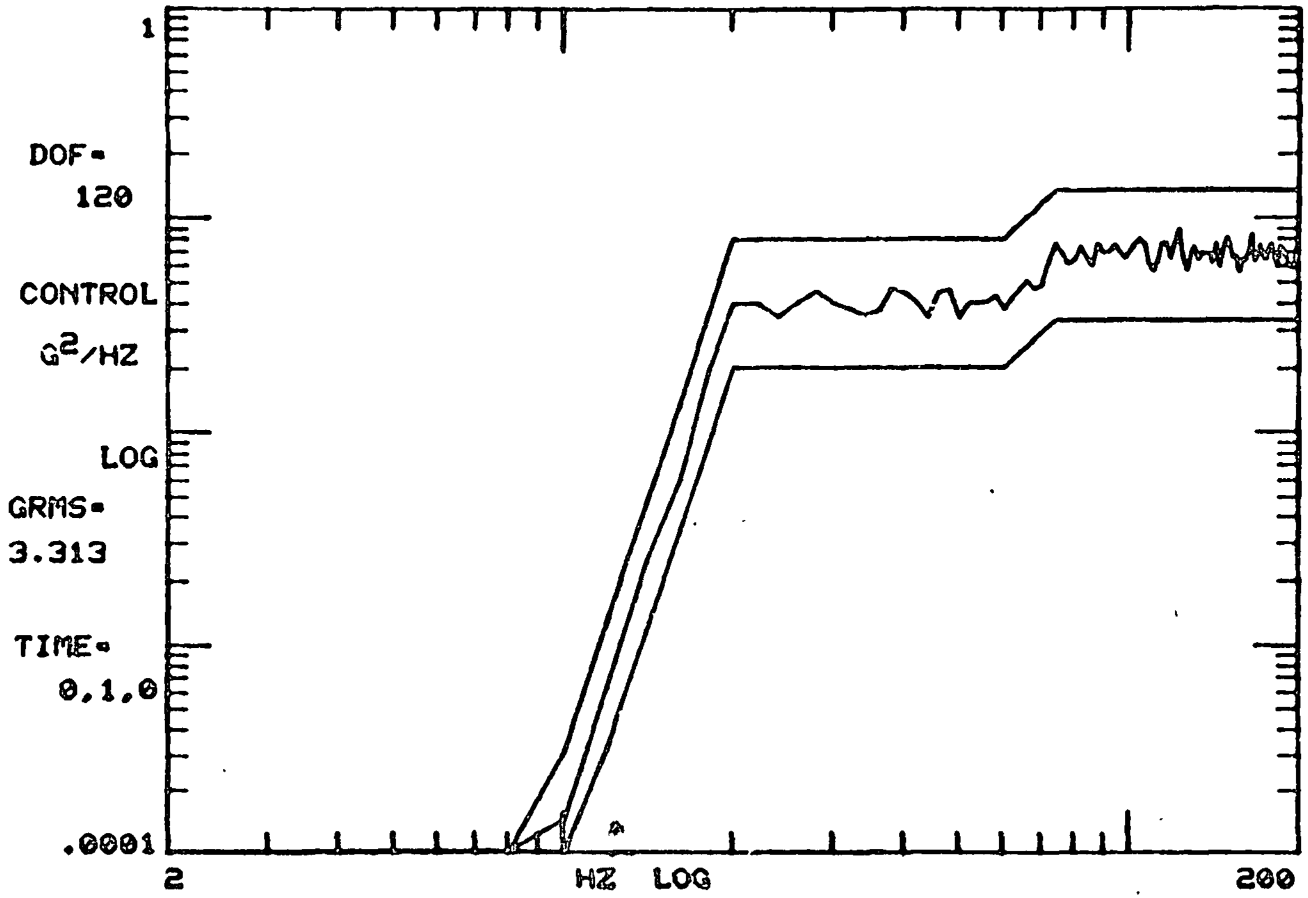

TMCOOL

TM RADIATIVE COOLER WORKMANSHIP VIBRATION

Z AXIS BARE FIXTURE TRIAL

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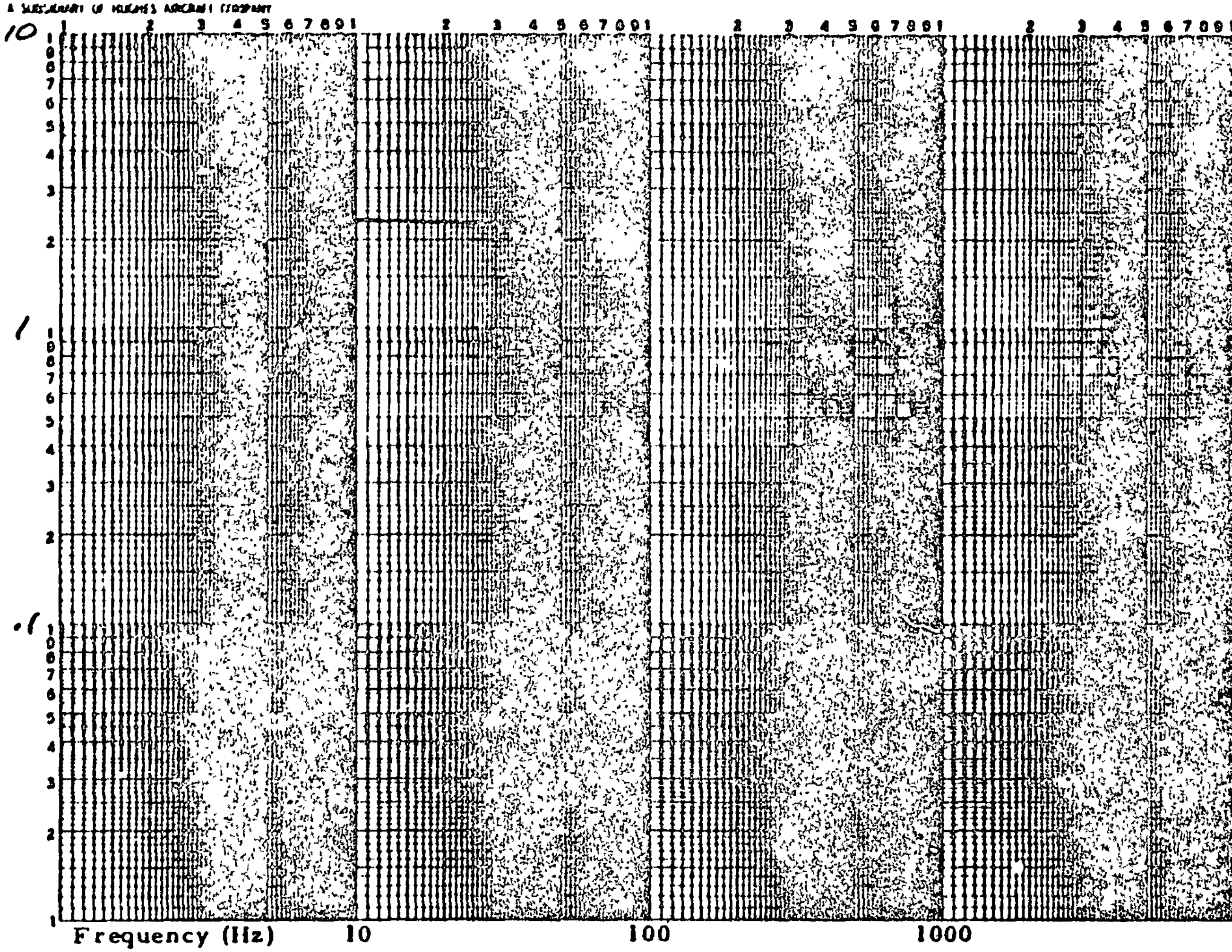
QUALITY ASSURANCE ENVIRONMENTAL LABORATORY

VIBRATION TEST

SBRC Form No. 0374

☒ Accel (g pk) ☐ Power Spectral Density (g^2/Hz) ☐ Transmissibility



Tape No.	
Start Feet	
End Feet	

Tape Chan	Function
1	Bare
2	Fixture
3	Triac
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VA	
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BLK	
BLU	
RED	
GRN	

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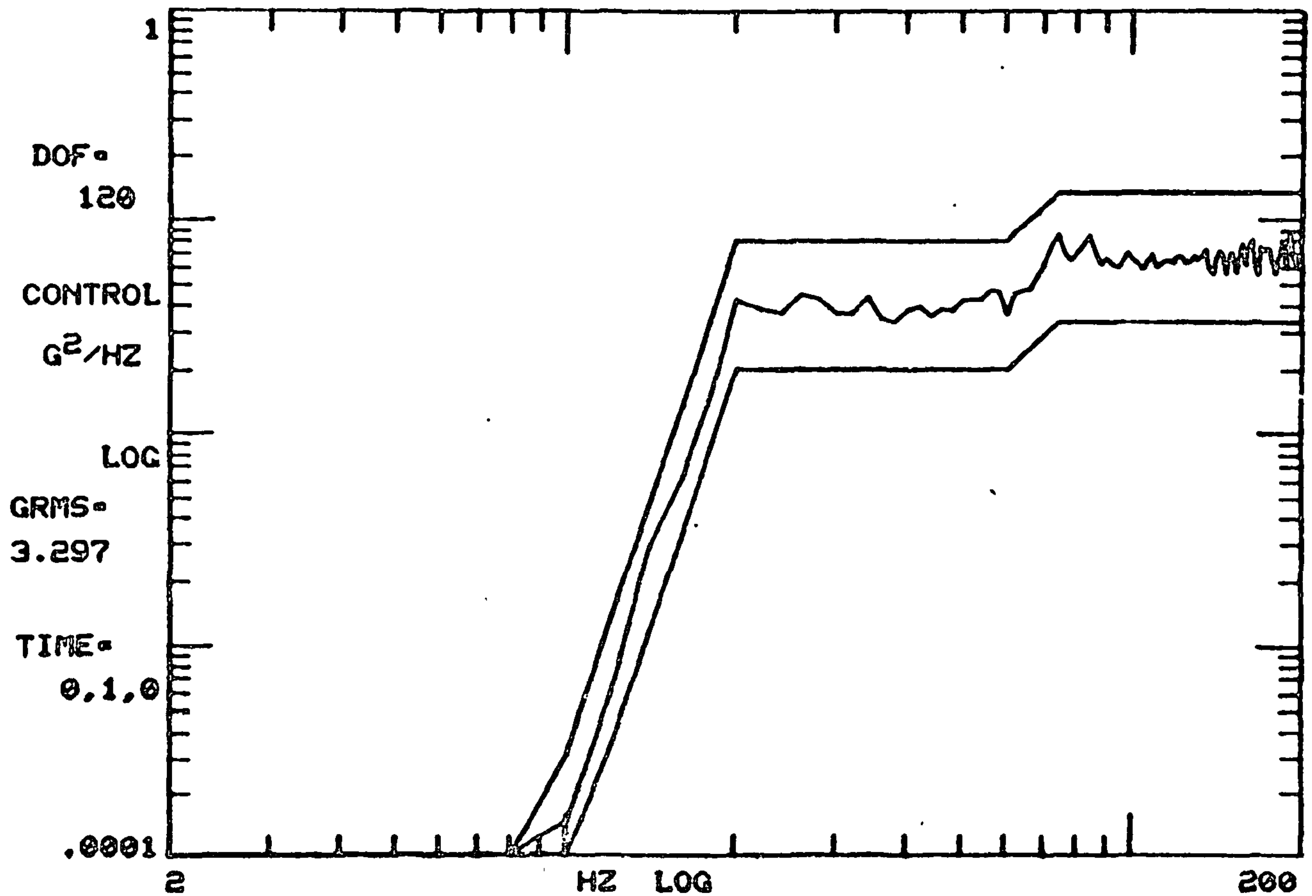
Job No. 82281 Item TM Rad Cooler Serial No. — Time 1510 Date 3-24-83 Operator R. [illegible]

Axis and Condition Z axis Bare Fix Pickup S/N and Location 1161 Control Pickup Sensitivity 10.13 pC pk/g pk

Overall av rms ______ = ______ g rms Sweep Speed 4 oct/min 1.1 min/sweep

Analyzer Filter ______ Hz BW Input Cal ______ -db Range ______ Hz Output Gain ______ +db Number of Averages ____ at ____ sec/average



TMCOOL

TM RADIATIVE COOLER WORKMANSHIP VIBRATION

Y AXIS

3-24-82

RAA
3/24/82

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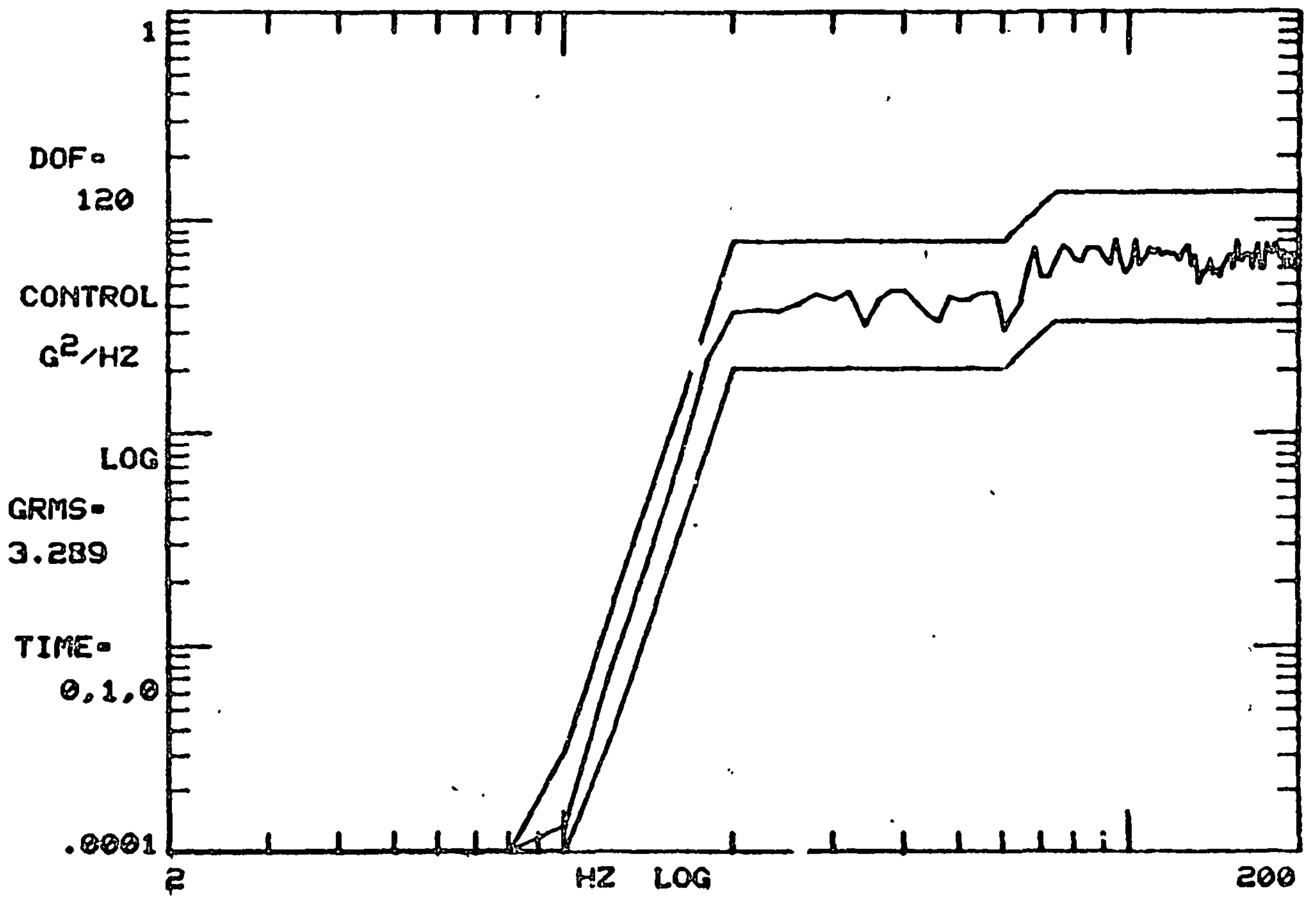

TMCOOL

TM RADIATIVE COOLER WORKMANSHIP VIBRATION

Pre-Test
3/22/84

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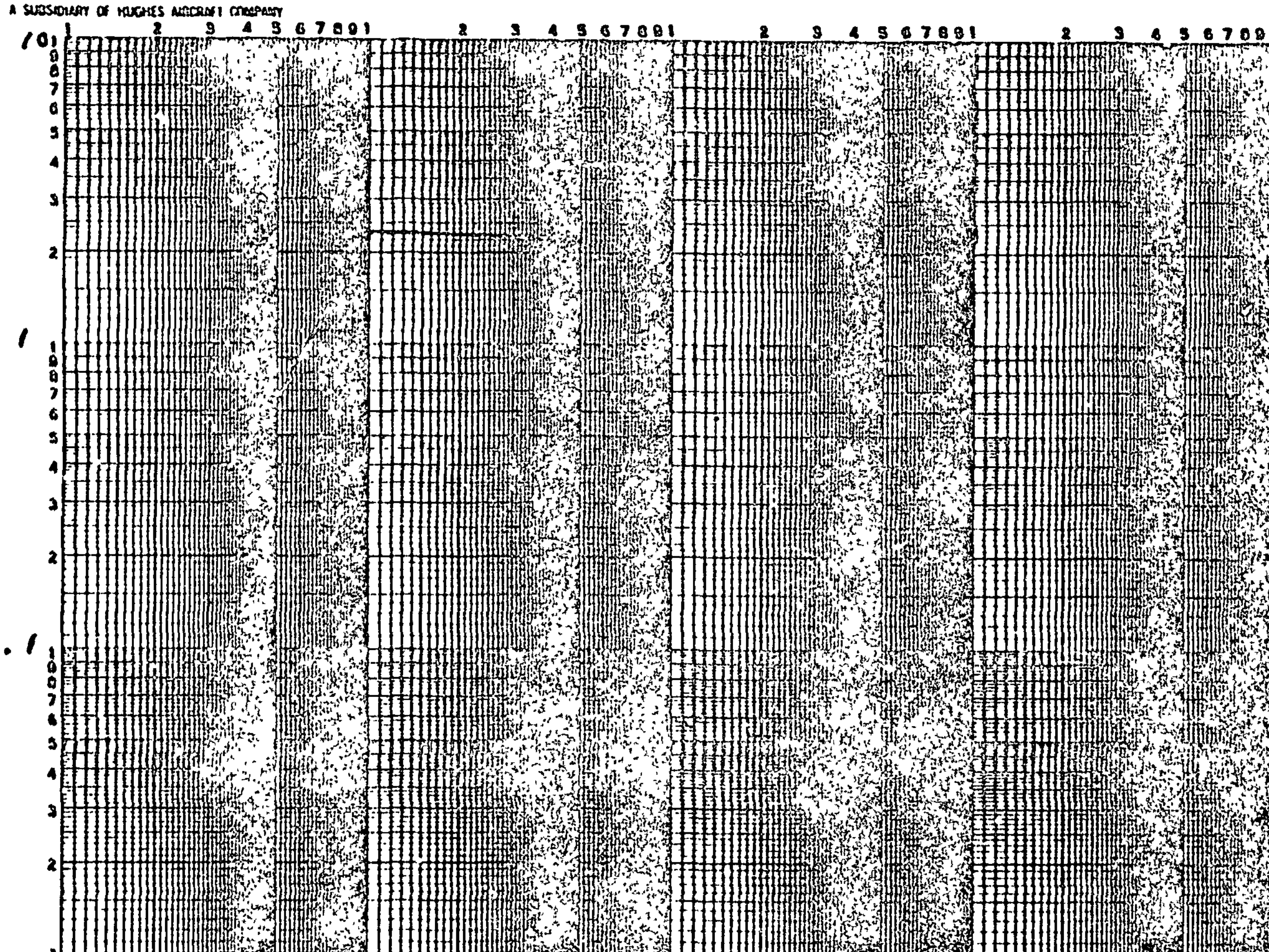
QUALITY ASSURANCE ENVIRONMENTAL LABORATORY

VIBRATION TEST

SBRC Form No. 0374

☒ Accel (g pk) ☐ Power Spectral Density (g^2/Hz) ☐ Transmissibility



Tape No.	
Start Feet	
End Feet	

Tape Chan	Function
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VA	
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RED	
GRN	

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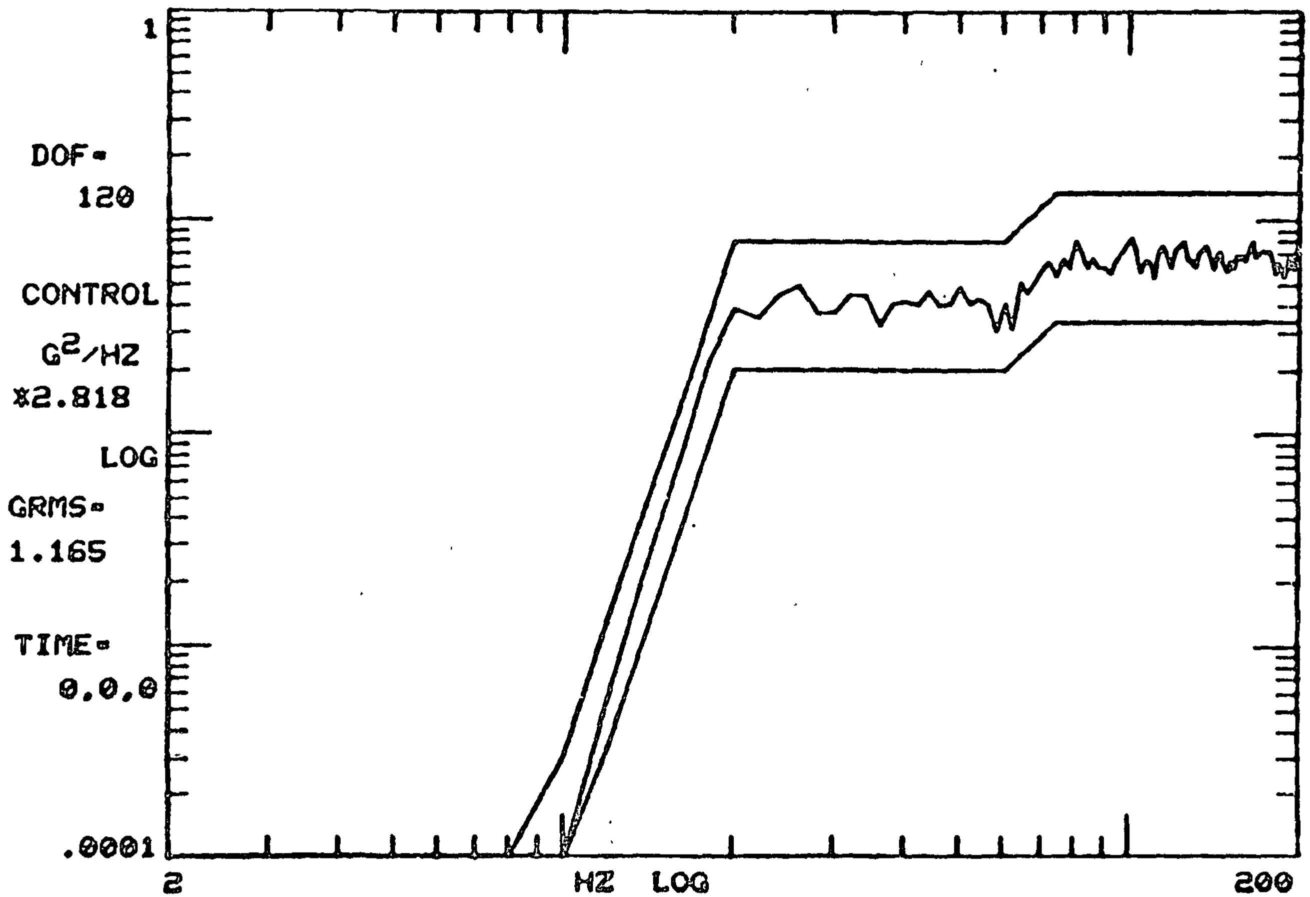
Job No. 82-281 Item TM Rad Cooler Serial No. 003 Time 1430 Date 3-24-83 Operator R. Hogue

Axis and Condition Vaxis Pickup S/N and Location S/N 1161 Cooler Pickup Sensitivity 10.13 pC pk/g pk

Overall mv rms ____ = ____ g rms Sweep Speed 4 oct/min 1.1 min/sweep

Analyzer Filter ____ Hz BW Input Cal ____ -db Range ____ Hz Output Gain ____ +db Number of Averages ____ at ____ sec/average

~~TEST ABORTED — SEE POST TEST~~



TMCOOL

TM RADIATIVE COOLER WORKMANSHIP VIBRATION

Y AXIS EQUALIZATION

3-24-82

RAP 3/24/82

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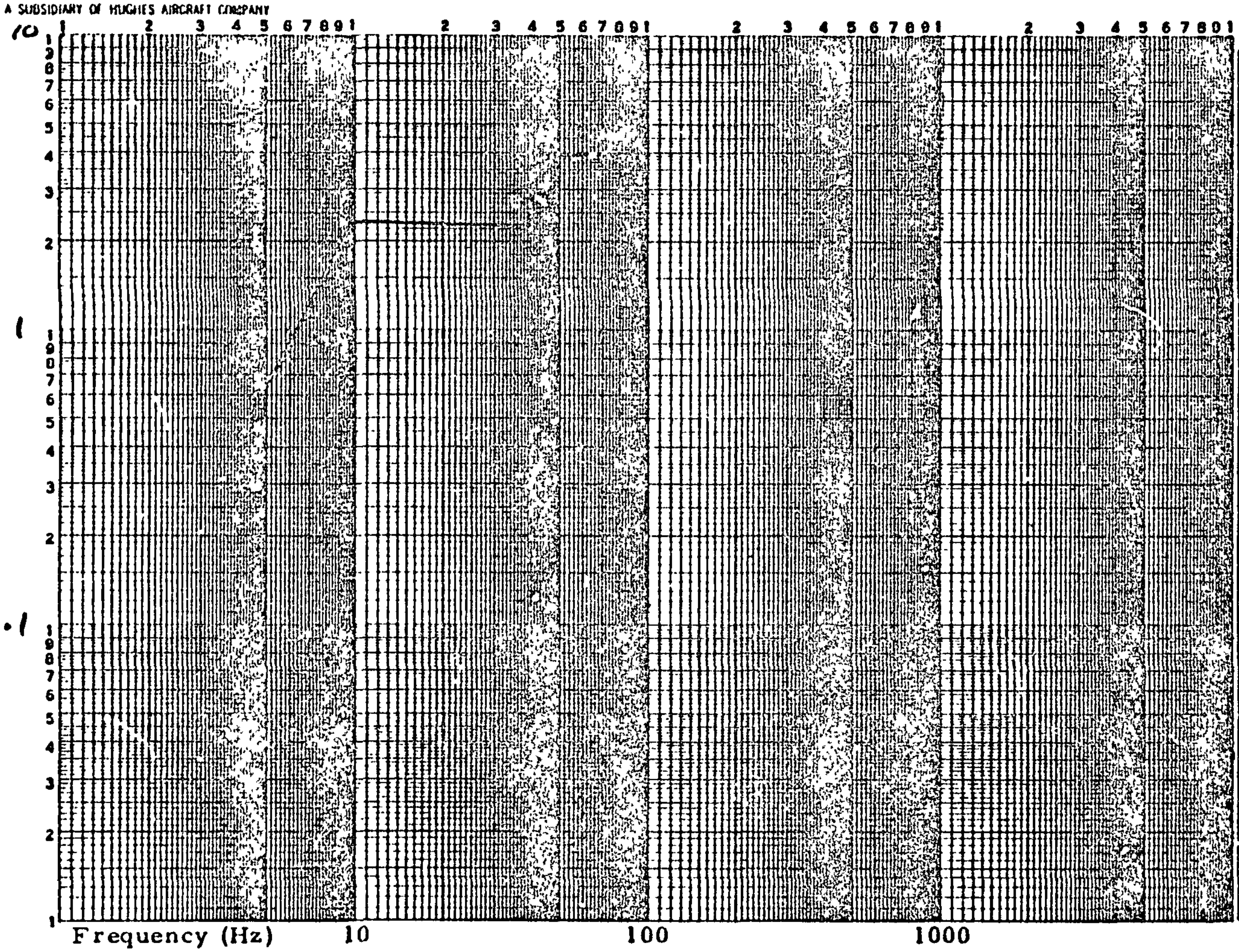
QUALITY ASSURANCE ENVIRONMENTAL LABORATORY — VIBRATION TEST

SBRC Form No. 0374

☒ Accel (g pk) ☐ Power Spectral Density (g^2/Hz) ☐ Transmissibility



Tape No. ________
Start Feet ________
End Feet ________

Tape Chan	Function
1	Bare
2	Fixture
3	
4	Equalization
5	Y axis
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7	Verification
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11	
12	
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14	
VA	
VB	
BLK	
BLU	
RED	
GRN	

Job No. 82281 Item TM Rad Cooler Serial No. ________ Time 1410 Date 3-24-82 Operator R. [illegible]

Axis and Condition Y axis Bare Fix Pickup S/N and Location 1161 Control Pickup Sensitivity 10.13 pCpk/gpk

Overall mv rms ________ = ________ g rms Sweep Speed 4 oct/min 1.1 min/sweep

Analyzer Filter ________ Hz BW Input Cal ________ -db Range ________ Hz Output Gain ________ +db Number of Averages ________ at ________ sec/average

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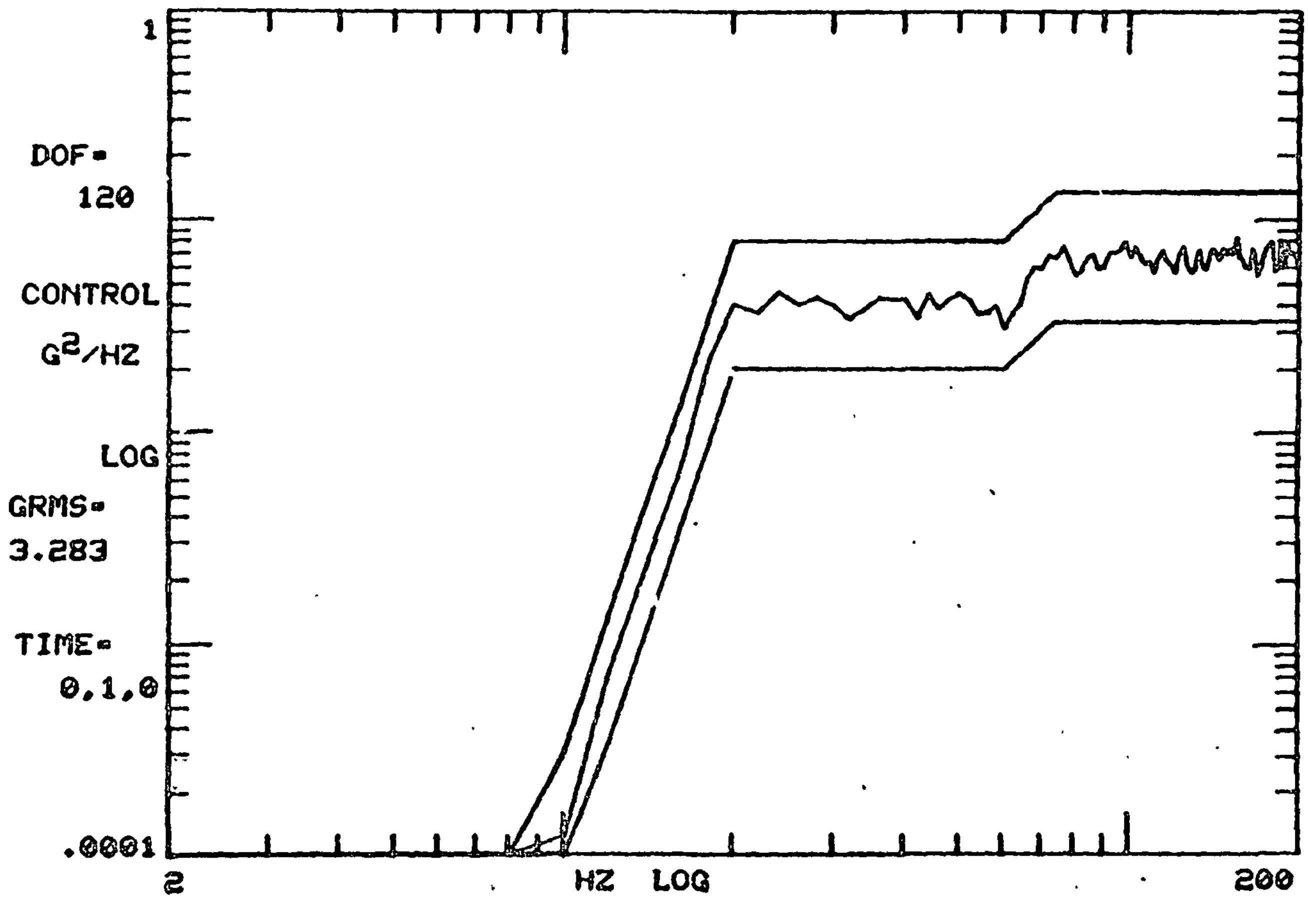

TMCOOL

TM RADIATIVE COOLER WORKMANSHIP VIBRATION

X AXIS

3-24-82

PoA 3/24/82

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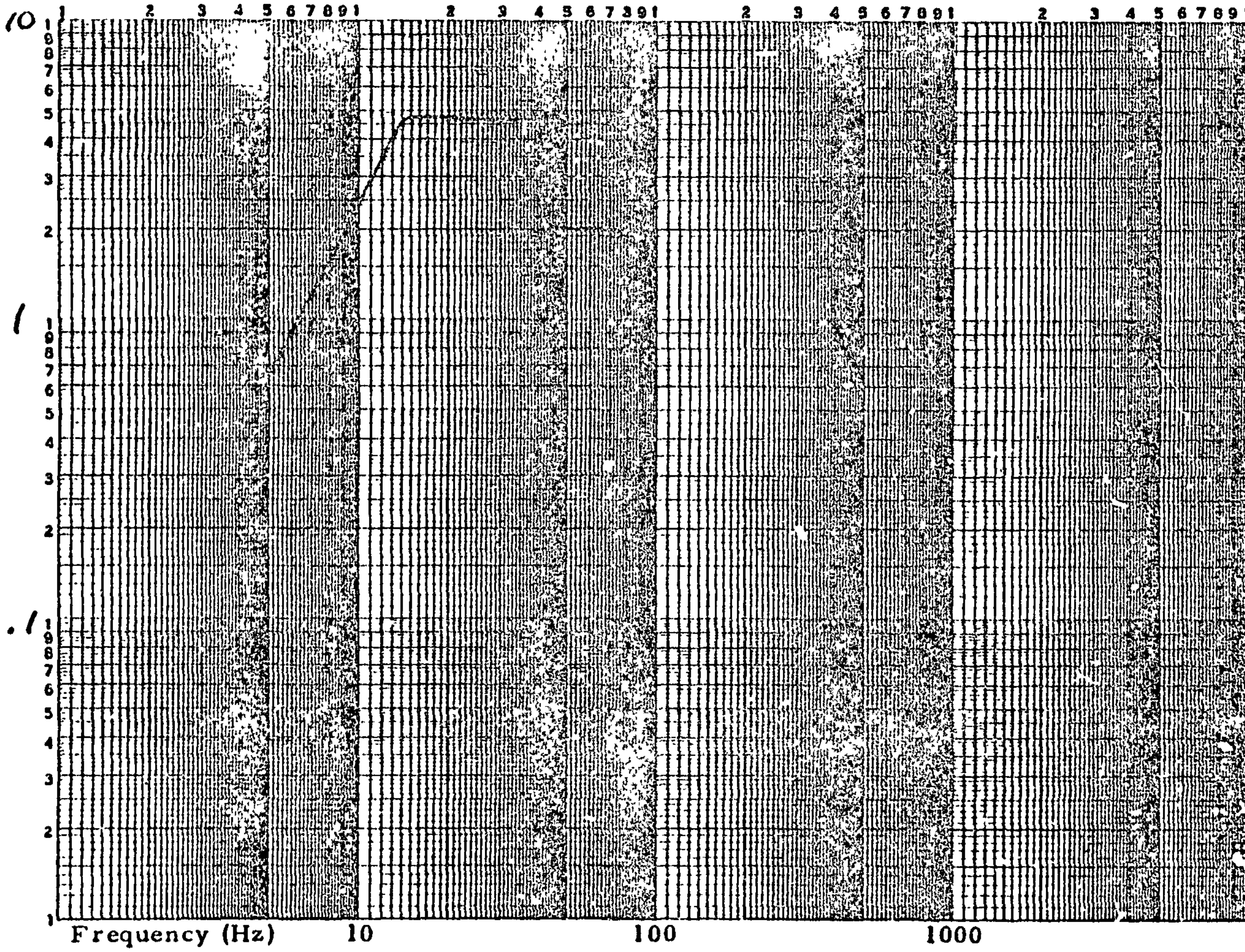
QUALITY ASSURANCE ENVIRONMENTAL LABORATORY — VIBRATION TEST

☒Accel (g pk) ☐Power Spectral Density (g^2/Hz) ☐Transmissibility



Tape No. ____
Start Feet ____
End Feet ____

Tape Chan	Function
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Job No. 82281 Item TM Rad Cooler Serial No. 003 Time 1345 Date 3-24-83 Operator R. Hoppe

Axis and Condition X Axis Pickup S/N and Location S/N 1161 Control Pickup Sensitivity 10.13 pC pk / g pk

Overall mv rms ____ = ____ g rms Sweep Speed 4 oct/min [illegible] min/sweep

Analyzer Filter ____ Hz BW Input Cal ____ -db Range ____ Hz Output Gain ____ +db Number of Averages ____ at ____ sec/average

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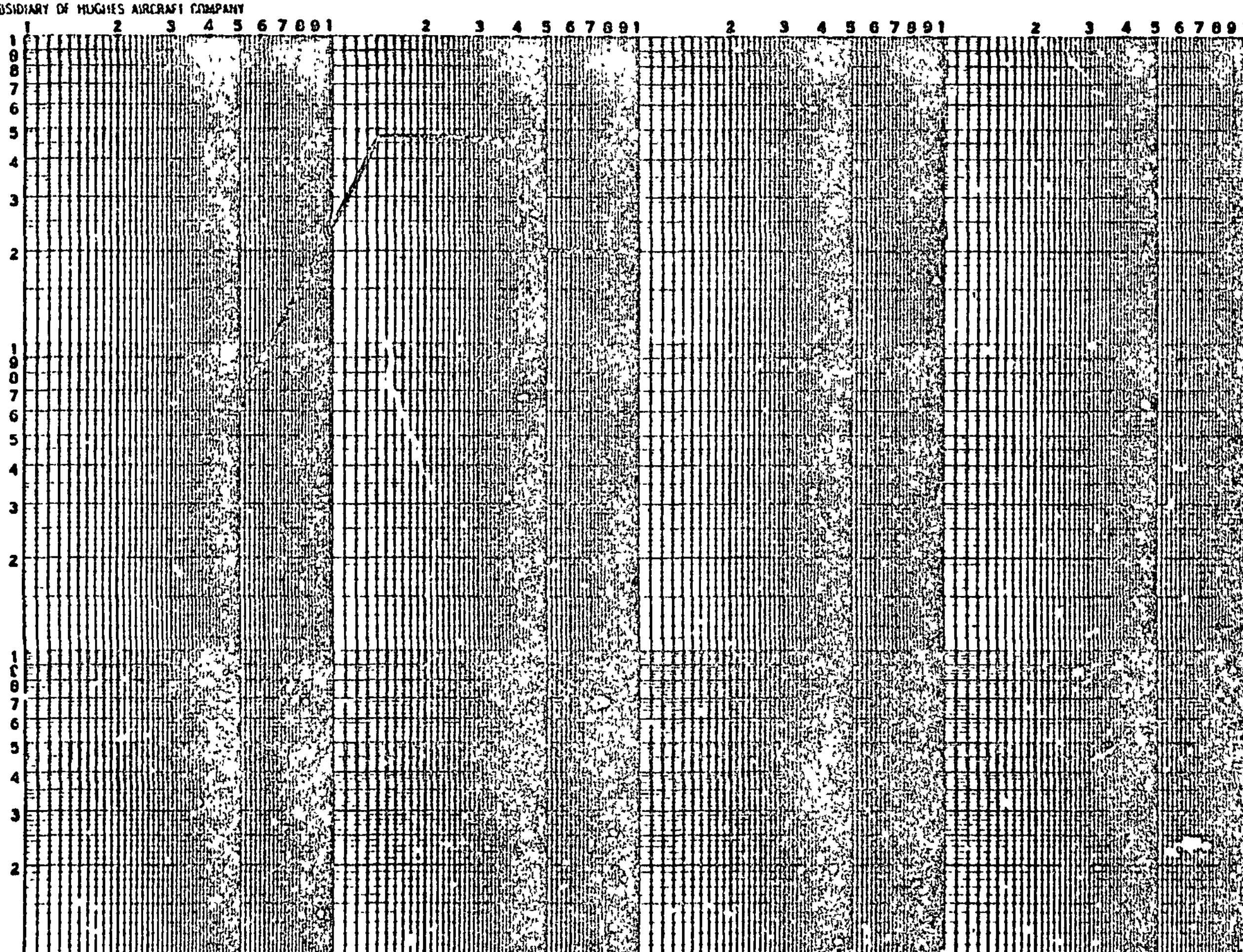
QUALITY ASSURANCE ENVIRONMENTAL LABORATORY

VIBRATION TEST

SBRC Form No. 0374

☐ Accel (g pk) ☐ Power Spectral Density (g^2/Hz) ☐ Transmissibility



Tape No. ____________

Start Feet ____________

End Feet ____________

Tape Chan	Function
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VA	
VB	
BLK	
BLU	
RED	
GRN	

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Job No. ________ Item ____________ Serial No. ________ Time ________ Date ________ Operator ____________

Axis and Condition ____________ Pickup S/N and Location ____________ Pickup Sensitivity ________ pC pk / g pk

Overall mv rms ________ = ________ g rms Sweep Speed ________ oct/min ________ min/sweep

Analyzer Filter ________ Hz BW Input Cal ________ -db Range ________ ________ Hz Output Gain ________ +db Number of Averages ________ at ________ sec/average

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Radiative Cooler

Performance Data

Part 2

Thermal Vacuum Test

This section contains data taken on the Radiative Cooler during the Thermal Vacuum Test per Test Procedure 16188.

SBS BAKE APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET F1 Pg 1

DATE TIME	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_e STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS
3-25-82 1500	1 ATM ~~760mm~~	21.2	21.4	22.1	21.7	—	—	—	START SBS BAKE
1530	2K MILLI TORR	40.3	39.4	35.4	33.9				BLACKBODY 60.6
1600	800×10^{-3}	64.0	63.5	52.9	50.4				BB 60.5
1630	1.4×10^{-4}	65.9	66.0	66.5	55.8				59.6
1700	9.2×10^{-5}	64.8	65.0	66.5	58.5				59.4
1730	6.2×10^{-5}	64.6	65.2	67.1	58.6				60.6
1800	4.3×10^{-5}	63.0	62.2	63.2	59.6				60.5
1830	3.2×10^{-5}	64.5	63.0	63.0	60.5				60.8
1900	2.6×10^{-5}	63.0	61.4	62.0	60.4				60.7
1930	2.2×10^{-5}	62.3	60.5	62.0	60.6				60.8
2000	1.7×10^{-5}	61.0	58.9	60.1	60.6				60.3
2030	1.5×10^{-5}	61.7	59.4	60.1	60.6				59.5
2100	1.4×10^{-5}	61.7	59.3	60.1	60.6				59.1
2130	1.3×10^{-5}	61.8	59.3	60.1	60.6				60.3
2200	1.2×10^{-5}	61.8	59.2	60.1	60.6				59.0
2230	1.1×10^{-5}	61.7	59.0	60.1	60.6				60.8
2300	0.2×10^{-5}	61.6	58.9	60.1	60.7				59.4
2330	10.0×10^{-6}	61.6	58.9	60.0	60.7				59.6
2400	9.5×10^{-6}	61.6	58.9	60.0	60.7 TS				59.8
0030	9×10^{-6}	61.9	59.1	60.0	60.7				60.3
0100	8.6×10^{-6}	62.0	59.1	60.0	60.7				59.7
0130	8.4×10^{-6}	62.0	59.1	60.0	60.7				60.8
0200	8×10^{-6}	62.1	59.2	60.0	60.7				60.2
0230	7.6×10^{-6}	62.1	59.2	60.0	60.7				59.8
0300	7.5×10^{-6}	62.1	59.2	60.0	60.7				60.1

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172

SBS BANF APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET Pg 2

DATE TIME	CHAMBER PRESSURE mm HG	SBS LN2 STAGE TEMP °C (#1)	SBS LN2 STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS
8-26-82 0330	7.2 x 10-6	62.1	59.2	60.0	60.7				60.8 B.B.
0400	6.8 x 10-6	62.1	59.2	60.0	60.7				59.9
0430	6.5 x 10-6	62.2	59.2	60.0	60.7				59.2
0500	6.3 x 10-6	62.2	59.2	60.0	60.7				59.9
0530	6.2 x 10-6	62.2	59.3	60.0	60.7				60.4
0600	6 x 10-6	62.2	59.3	60.0	60.7				60.6
0630	5.8 x 10-6	62.3	59.3	60.0	60.7				60.7
0700	5.6 x 10-6	62.3	59.3	60.0	60.7				59.9
0730	5.3 x 10-6	62.2	59.3	60.0	60.7				60.5 T.T.C.
0800	5.2 x 10-6	62.3	59.3	59.9	60.7				59.8
0830	5.0E-6	62.3	59.3	59.9	60.8				60.2
0900	5.0E-6	62.3	59.3	59.9	60.8				59.2
0930	4.8E-6	62.3	59.3	59.9	60.8				59.3
1000	4.7E-6	62.3	59.3	59.9	60.7				60.0
1030	4.6E-6	62.3	59.4	59.9	60.8				59.2
1100	4.4E-6	62.3	59.4	59.8	60.7				60.0
1130	4.3E-6	62.4	59.4	59.8	60.7				60.2 Blackbody
1200	4.3E-6	62.4	59.4	59.8	60.8				60.4
1230	4.2E-6	62.4	59.4	59.8	60.7				60.2
1300	4.2E-6	62.4	59.4	59.8	60.7				59.4
1330	4.0E-6	62.4	59.4	59.8	60.8				62.7
1400	3.9E-6	62.4	59.4	59.8	60.8				61.4
1430	3.9E-6	62.4	59.5	59.8	60.8				62.1
1500	3.9E-6	62.5	59.5	59.8	60.8				62.5 Blackbody
1530	3.7E-6	62.5	59.5	59.8	60.8				61.3

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172

SBS FI BAKE APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET

DATE TIME	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_e STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS
3-26-82 1600	3.6E-6	62.5	59.5	59.7	60.8				61.6 Blackbody
1630	3.5×10^{-6}	62.5	59.5	59.7	60.8				61.1
1700	3.5×10^{-6}	62.5	59.5	59.7	60.8				61.5
1730	3.4×10^{-6}	62.5	59.5	59.7	60.8				61.3
1800	3.3×10^{-6}	62.5	59.5	59.7	60.8				61.8
1830	3.3×10^{-6}	62.5	59.5	59.8	60.8				62.4
1900	3.3×10^{-6}	62.5	59.5	59.8	60.8				61.7
1930	3.2×10^{-6}	62.5	59.5	59.8	60.8				61.7
2000	3.1×10^{-6}	62.6	59.5	59.7	60.8				61.1
2030	3.0×10^{-6}	62.5	59.5	59.7	60.8				61.1
2100	3.0×10^{-6}	62.4	59.4	59.7	60.8				61.9
2130	3.0×10^{-6}	62.4	59.4	59.8	60.8				61.7
2200	2.9×10^{-6}	62.4	59.4	59.8	60.8				61.9
2230	2.9×10^{-6}	62.4	59.4	59.8	60.8				61.2
2300	2.8×10^{-6}	62.4	59.4	59.8	60.8				61.4
2330	2.8×10^{-6}	62.4	59.4	59.8	60.8				62.4
2400	2.8×10^{-6}	62.4	59.4	59.8	60.8			T.S.	62.2 3/27/82
3-27-82 0030	2.8×10^{-6}	62.4	59.4	59.8	60.8				61.9
0100	2.7×10^{-6}	62.5	59.4	59.9	60.8				62.6
0130	2.7×10^{-6}	62.5	59.4	59.9	60.8				61.3
0200	2.7×10^{-6}	62.5	59.4	59.9	60.8				62.2
0230	2.7×10^{-6}	62.5	59.4	59.9	60.8				62.1 CHANGED LN_2 TANK
0300	2.6×10^{-6}	62.5	59.4	59.9	60.8				62.0
0330	2.6×10^{-6}	62.5	59.4	59.9	60.8				61.3
0400	2.5×10^{-6}	62.5	59.4	59.9	60.8				61.4

F1

SBS BAKE APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET

DATE TIME 2?/82	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_e STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS BLACK BODY
430	2.5×10^{-6}	62.5	59.5	59.9	60.9				62.2
500	2.5×10^{-6}	62.6	59.5	59.9	60.9				62.4
530	2.4×10^{-6}	62.6	59.5	59.9	60.9				62.1
0600	2.4×10^{-6}	62.6	59.5	59.9	60.9				61.3
0630	2.4×10^{-6}	62.6	59.6	59.9	60.8				60.9
0700	2.4×10^{-6}	62.7	59.6	59.9	60.8				61.2
0730	2.3×10^{-6}	62.7	59.6	59.8	60.9				61.3
0800	2.3×10^{-6}	62.7	59.6	59.8	60.9				61.5
0830	2.3×10^{-6}	62.7	59.6	59.8	60.8				~~61.9~~ 62.4
0900	2.4×10^{-6}	62.7	59.6	59.8	60.9				62.6
0930	2.3×10^{-6}	62.7	59.6	59.9	60.5				62.4 (TURN OFF THERMAL ROC)
200	2.2×10^{-6}	60.8	57.9	58.5	52.2				58.8
030				END PRE-TEST SBS BAKE					172
1100									
1130									
1200									
1230									
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1400									
1430									
1500									

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COOLER BAKE **APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET** P5

DATE TIME 2/27/82	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_e STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS
2100	ATM	24.6	24.4	23.3	22.7	23.3	26.7	22.8	START PUMPDOWN
2200	1.5×10^{-4}	COLD SHOCK LINES 42.2	47.8	41.7	36.5	24.9	27.6	25.1	INTERSTAGE RESIS-
2230	6.2×10^{-5}	55.9	59.1	57.7	43.4	29.5	31.7	33.9	TANCE A-I 0.60 Ω I-C 3.76 Ω
2300	4.0×10^{-5}	57.8	61.8	58.2	47.9	34.0	37.1	43.5	A-I 2-11 I-C 1-11
2330	2.7×10^{-5}	57.0	61.9	58.9	48.6	37.5	43.0	51.2	BB 61.9
2400	2.1×10^{-5}	57.7	62.8	59.2	49.5	39.5	47.4	55.1	62.2
3/28/82 0030	1.6×10^{-4}	57.0	62.5	59.4	50.3	41.3	48.	51.7	60.3
0100	2.1×10^{-4}	56.6	62.3	59.5	50.8	42.2	5 3	54.1	60.1
0130	1.2×10^{-5}	56.2	62.1	59.6	4	48.2	56.9	59.6	60.5
0200	[illegible]$\times10^{-6}$	56.0	62.0	59.6	51.6	43.7	58.1	59.9	60.8
0230	9.5×10^{-6}	55.8	62.2	59.6	52.0	44.3	59.7	60.2	60.9
0300	4.5×10^{-6}	55.7	67.3	59.7	52.2	44.8	60.9	59.4	61.0
0330	9.0×10^{-6}	55.7	68.0	59.6	52.3	45.0	61.5	60.0	61.6
0400	8.8×10^{-6}	55.6	62.0	59.8	52.4	45.6	62.8	60.3	61.8
0430	7×10^{-6}	55.6	61.9	59.8	52.6	45.6	62.8	60.7	62.2
0500	6.8×10^{-6}	55.7	61.9	59.8	52.8	45.7	63.0	60.6	62.2
0530	6.6×10^{-6}	55.6	62.0	59.9	52.9	45.9	63.3	60.7	61.7
0600	6.5×10^{-6}	55.6	62.10	59.8	53.1	46.1	63.6	60.7	60.7
0630	5.8×10^{-6}	55.6	62.0	59.8	53.2	46.3	63.8	60.8	61.0
0700	5.5×10^{-6}	55.6	62.0	59.8	53.2	46.4	63.9	60.9	60.4
0730	5.1×10^{-6}	55.6	62.0	59.8	53.4	46.5	64.1	60.9	60.7
0800	5×10^{-6}	55.7	62.0	59.7	53.6	46.7	64.2	60.9	60.7
0830	4.4×10^{-6}	55.7	62.0	59.6	53.6	46.8	64.3	60.9	61.2
0900	4.4×10^{-6}	55.7	62.0	59.6	53.6	46.9	64.3	60.9	60.7
1838	4.3×10^{-6}	55.8	62.0	59.6	53.7	47.0	64.4	60.9	61.3
1000	4.2×10^{-6}	55.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

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COOLER BAKE APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET P6

DATE TIME 4-28-82	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_e STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS BLACK BODY
030	4.2×10^{-6}	55.8	62.0	59.5	53.8	47.2	64.5	60.9	61.9
100	4.1×10^{-6}	55.8	62.0	59.5	55.2	47.3	64.5	61.0	60.8
130	4.0×10^{-6}	56.0	62.1	59.5	56.2	47.8	64.5	61.0	60.6
200	4.0×10^{-6}	56.0	62.1	59.5	56.3	48.1	64.6	61.0	60.2
230	3.9×10^{-6}	56.0	62.1	59.5	56.5	48.3	64.6	61.0	60.3
300	3.8×10^{-6}	56.0	62.1	59.5	56.7	48.5	64.7	61.0	60.6
330	3.7×10^{-6}	56.0	62.0	59.5	56.8	48.6	64.7	61.1	60.8
400	3.6×10^{-6}	56.1	62.1	59.5	56.9	48.8	64.7	61.1	59.8
430	3.5×10^{-6}	56.1	62.1	59.4	57.0	48.9	64.8	61.1	60.1
500	3.5×10^{-6}	56.1	62.0	59.4	57.1	49.0	64.8	61.1	60.2
530	3.4×10^{-6}	56.1	62.1	59.4	57.1	49.1	64.7	61.1	62.5
600	3.4×10^{-6}	56.1	62.1	59.4	57.1	49.1	64.8	61.1	61.2 ART
630	3.4×10^{-6}	56.1	62.1	59.4	57.1	49.2	64.8	61.1	60.8
700	3.3×10^{-6}	56.1	62.1	59.4	57.2	49.2	64.8	61.1	61.1
730	3.3×10^{-6}	56.1	62.1	59.5	57.2	49.3	64.9	61.1	61.7
800	3.2×10^{-6}	56.2	62.1	59.5	57.2	49.3	64.8	61.1	62.5
1830	3.2×10^{-6}	56.2	62.1	59.5	57.3	49.3	64.9	61.1	60.6
900	3.1×10^{-6}	56.3	62.1	59.5	57.3	49.4	64.9	61.1	60.1
1930	3.1×10^{-6}	56.3	62.2	59.6	57.4	49.4	64.9	61.1	59.8
2000	3.1×10^{-6}	56.2	62.1	59.5	57.4	49.5	64.9	61.1	60.7
2030	3.0×10^{-6}	56.2	62.1	59.5	57.4	49.5	64.8	61.1	61.0
2100	2.9×10^{-6}	56.2	62.1	59.6	57.4	49.5	64.9	61.1	60.7
2130	2.9×10^{-6}	56.3	62.1	59.6	57.4	49.5	64.9	61.1	60.6
2200	2.8×10^{-6}	56.3	62.1	59.6	57.4	49.5	64.9	61.1	60.9
2230	2.8×10^{-6}	56.3	62.1	59.4	57.5	49.6	64.9	61.1	60.9

– RAD COOLER BAKE –

APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET

DATE TIME 3-28-82	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_e STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS #5
2300	2.7×10^{-6}	56.3	62.1	59.6	57.6	49.6	64.9	61.1	BLACK BODY 60.2
2330	2.7×10^{-6}	56.3	62.1	59.6	57.3	49.6	64.9	61.1	60.4
2400	2.7×10^{-6}	56.3	62.1	59.6	57.3	49.6	64.9	61.1	Tony S OR 3-29-82 60.4
0030	2.7×10^{-6}	56.4	62.1	59.6	57.3	49.6	64.9	61.1	60.3
0100	2.7×10^{-6}	56.4	62.1	59.7	57.3	49.6	64.9	61.1	59.9
0130	2.7×10^{-6}	56.4	62.1	59.7	57.3	49.6	65.0	61.2	60.6
0200	2.9×10^{-6}	56.4	62.1	59.7	57.3	49.6	65.0	61.2	60.5
0230	2.7×10^{-6}	56.4	62.1	59.8	57.3	49.6	65.0	61.2	60.4
0300	2.7×10^{-6}	56.4	62.1	59.8	57.3	49.6	65.0	61.2	60.5
0330	2.7×10^{-6}	56.4	62.1	59.8	57.3	49.6	65.0	61.2	60.3
0400	2.5×10^{-6}	56.4	62.1	59.8	57.3	49.6	65.0	61.2	60.3
0430	2.5×10^{-6}	56.4	62.1	59.8	57.2	49.6	65.0	61.2	60.7
0500	2.5×10^{-6}	56.4	62.1	59.8	57.3	49.6	65.0	61.2	60.4
0530	2.4×10^{-6}	56.4	62.1	59.8	57.3	49.6	65.0	61.1	60.4
0600	2.4×10^{-6}	56.4	62.1	59.8	57.3	49.6	65.0	61.2	60.2
0630	2.4×10^{-6}	56.4	62.1	59.8	57.3	49.6	65.0	61.2	60.1
0700	2.4×10^{-6}	56.4	62.1	59.8	57.2	49.6	65.0	61.2	59.6
0730	2.3×10^{-6}	56.4	62.1	59.8	57.4	49.6	65.0	61.2	59.6
0800	2.3×10^{-6}	56.4	62.2	59.7	57.8	49.7	65.0	61.2	59.8
0830	2.3E-6	56.5	62.2	59.7	57.8	49.7	65.0	61.2	59.6
0900	2.3E-6	56.4	62.2	59.6	57.8	49.8	65.0	61.2	60.0
0930	2.3E-6	56.4	62.1	59.6	57.9	49.8	65.0	61.2	59.7
1000	2.3E-6	56.4	62.1	59.6	57.9	49.9	65.0	61.2	59.5
1030	2.25E-6	56.5	62.2	59.5	57.9	49.9	65.0	61.2	59.8
1100	2.25E-6	56.6	62.2	59.6	57.9	49.9	65.0	61.2	60.1

– RAD COOLER BAKE –

APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET

DATE TIME	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_e STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS #5 °C
3/29 11:30	2.25E-6	56.4	62.1	59.5	57.9	49.9	65.0	61.2	59.9 B.B.
12:00	2.20E-6	56.5	62.2	59.5	58.1	50.0	65.0	61.2	59.2
12:30	2.2 E-6	56.5	62.1	59.6	58.1	50.0	65.0	61.2	60.0
13:00	2.2 E-6	56.4	62.1	59.5	58.0	50.0	65.0	61.2	60.3
13:30	2.1 E-6	56.5	62.2	59.5	58.1	50.0	65.0	61.2	60.0
14:00	2.1 E-6	56.5	62.2	59.5	58.1	50.1	65.0	61.2	60.1
1430	2.1E-6	56.5	62.2	59.6	58.1	50.1	65.0	61.2	60.3
1500	2.1E-6	56.5	62.2	59.6	58.1	50.1	65.0	61.2	60.0
1530	2.1 E-6	56.5	62.2	59.6	58.1	50.1	65.0	61.2	60.5
1600	2.1 E-6	56.5	62.2	59.6	58.2	50.1	65.0	61.2	59.7
1630	2.1E-6	56.5	62.2	59.5	58.3	50.1	65.0	61.2	60.1 Art
1700	2.0E-6	56.5	62.2	59.6	58.1	50.1	65.1	61.2	60.8
1730	2.0E-6	56.5	62.2	59.6	58.2	50.1	65.1	61.2	60.4
1800	2.0E-6	56.5	62.2	59.6	58.2	50.1	65.0	61.2	60.7
1830	2.0E-6	56.5	62.2	59.6	58.2	50.1	65.1	61.2	60.2
1900	2.0E-6	56.5	62.2	59.6	58.3	50.1	65.0	61.2	62.3
1930	2.0E-6	56.5	62.2	59.6	58.2	50.1	65.0	61.2	61.9
2000	2.0E-6	56.5	62.2	59.6	58.4	50.2	65.0	61.2	61.6
2030	2.0E-6	56.5	62.2	59.6	58.4	50.2	65.0	61.2	62.3
2100	2.1E-6	56.4	62.2	59.6	58.2	50.2	65.0	61.2	61.5
			END	48-HR	COOLER BAKE				REVIEWED 3-29-82 9 PM.

~ -192°C APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET INITIAL COOLDOWN P9

~ -194°C

DATE TIME 3/29/82	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (01)	SBS LN_e STAGE TEMP °C (02)	RC DOOR TEMP °C (03)	RC MOUNT PLTFM TEMP °C (04)	RC AMBIENT HOUSING TEMP °C (06)	RC INT STAGE TEMP °C (08)	RC COLD STAGE TEMP °C (09)	REMARKS
2110	1.2E-6	56.3	60.5	+59.4	55.0	50.0	64.9	61.2	#5 62.0 BB
2130	1.0E-6	47.0	-194.2	+55.9	47.1	42.9	55.4	44.2	START COOLDOWN
2200	1.1E-6	-128.7	-191.6	+50.7	+42.5	+36.4	43.5	+17.1	
2230	9.0E-7	-191.0	-190.1	+42.1	+36.7	+30.2	+28.7	-11.7	3.65 Ω
2300	9.5E-7	-192.8	-188.7	+32.3	+31.2	+24.5	+13.4	-37.9	
2330	9.2E-7	-192.5	-194.2	+28.7	+29.4	+22.6	+8.0	-46.1	3.52
2400	8.6E-7	-192.8	-195.3	+20.7	+25.5	+18.7	-3.5	-62.4	TONY 3/30/82
3-30 0030	8.5E-7	-192.6	-195.2	+14.1	+22.4	+15.7	-13.2	-74.8	3.52
0100	7.4E-7	-192.8	-194.0	+8.7	+20.1	+13.4	-20.8	-83.5	3.31
0130	7.4E-7	-192.8	-193.6	+3.9	+18.1	+11.5	-27.4	-90.9	3.21
0200	7E-7	-192.6	-192.7	+.9	+16.3	+9.7	-33.6	-97.4	3.18
0230	7E-7	-192.6	-192.1	+.5	+14.7	+8.1	-39.3	-103.3	3.13
0300	6.8E-7	-192.6	-192.1	+.3	+13.4	+6.8	-44.3	-108.3	3.12
0330	6.8E-7	-192.6	-191.4	+.2	+12.1	+5.6	-49.1	-112.9	3.09
0400	7E-7	-192.6	-193.2	+.2	+11.0	+4.5	-53.4	-116.9	3.06
0430	7E-7	-192.7	-192.7	+.1	+10.0	+3.5	-57.1	-120.4	3.04
0500	6.8E-7	-192.8	-192.3	+.1	+9.0	+2.6	-60.8	-123.7	3.04
0530	6.8E-7	-192.6	-191.8	+.1	+8.1	+1.7	-64.3	-126.8	3.02
0600	7E-7	-192.6	-192.2	+.1	+7.2	+.9	-67.5	-129.7	3.0
0630	6.6E-7	-192.6	-192.2	+.1	+6.5	+.2	-70.5	-132.3	2.98
0700	6.6E-7	-192.6	-191.4	+.1	+5.8	+.4	-73.3	-134.7	3.01
0730	7E-7	-192.8	-194.7	+0.0	+5.1	-1.1	-75.9	-137.0	3.03
0800	6.8E-7	-192.7	-194.1	+1.9	+7.1	-1.4	-78.3	-139.0	3.00
0830	6.8E-7	-192.7	-193.7	-2.9	+5.4	-1.7	-80.7	-141.1	2.96
0900	8.5E-7	-192.7	-194.4	0.0	+4.3	-2.2	-82.6	-142.7	2.94

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APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET

DATE TIME 3-30	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_e STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS
0930	8.0x10-7	-192.8	-194.3	-.1	+3.5	-2.8	-84.6	-144.5	2.93 Ω
1000	8.0E-7	-192.5	-194.4	-.2	+2.8	-3.3	-86.9	-146.3	2.93
1030	7.9E-7	-192.7	-194.5	-.2	+2.2	-3.8	-88.9	-148.0	2.94
1100	7.8E-7	-192.4	-194.9	-.3	+2.4	-4.1	-90.4	-149.3	2.92
1130	7.7E-7	-192.6	-194.6	-.3	+8.3	~~+11.6~~ -4.0	-92.2	-150.8	2.92
12:00	7.1E-7	-192.6	-194.4	-.4	+9.7	-3.5	-93.8	-152.2	2.92
12:30	7.0E-7	-192.4	-194.4	+.4	+9.7	-3.1	-95.4	-153.5	2.91
13:00	7.0E-7	-192.4	-194.4	+.4	+9.7	-2.9	-96.7	-154.6	2.90
13:30	7.2E-7	-192.5	-194.8	+.5	+9.7	-2.8	-98.2	-155.8	2.84
1400	8.3E-7	-191.9	-194.4	+.8	+9.8	-2.8	-99.5	-156.9	2.85
1430	7.7E-7	-191.8	-194.3	+1.1	+9.8	-2.8	-100.7	-158.0	2.85
1500	6.9E-7	-191.8	-194.4	+1.3	+11.7	-2.5	-102.0	-159.0	2.86
1530	6.8E-7	-192.2	-194.4	+1.4	+11.9	-2.4	-103.1	-159.9	2.87
1600	6.8E-7	-192.0	-194.5	+1.4	+11.7	-2.4	-103.9	-160.5	2.87
1630	7.2E-7	-192.1	-194.3	+1.4	+14.3	-2.0	-105.5	-161.9	2.87
1700	7.2E-7	-191.9	-194.4	+1.4	+14.3	-1.8	-106.1	-162.4	2.86
1730	6.9E-7	-192.1	-194.4	+1.4	+14.3	-1.7	-107.2	-163.3	2.86
1800	7.0E-7	-191.8	-194.7	+1.4	+14.3	-1.6	-107.8	-163.9	2.86 PRT CONNECTION
1830	6.8E-7	-191.9	-194.7	+1.5	+14.3	-1.6	-411.7	-164.8	2.96 TEMPORARILY BROKEN
1900	6.7E-7	-191.7	-194.7	+1.2	+14.3	-1.6	-412.0	-165.6	2.93 T.T.C
1930	6.6E-7	-192.0	-194.5	+1.1	+14.3	-1.6	-412.5	-166.1	2.92
2000	6.6E-7	-191.8	-194.0	+1.0	+14.3	-1.7	-412.8	-167.2	2.92
2030	6.7E-7	-191.7	-194.0	+1.0	+14.3	-1.7	-412.4	-167.4	2.88
2100	6.4E-7	-191.9	-193.7	+1.1	+14.3	-1.7	-112.4	-167.7	2.89
2130	7.5E-7	-191.8	-194.5	+1.1	+14.3	-1.8	-113.0	-168.3	.3B on T.T.C

APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET

DATE TIME	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_e STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS
2200	70E-7	-191.9	-194.4	+1.2	+14.3	-1.8	-113.7	-168.8	2.88Ω
2230	70E-7	-191.8	-194.6	+1.2	+14.3	-1.8	-114.2	-169.2	COLD STAGE A?T DISCONNECTED FOR
2300	6.8E-7	-192.0	-194.6	+1.2	+14.4	-1.7	-114.8	OMITT	CONTROLLER TESTS. 2.89Ω
2330	6.5E-7	-192.0	-194.5	+1.2	+14.4	-1.7	-115.4	—	2.90Ω
2400	7.8E-7	-192.1	-194.3	+1.2	+14.3	-1.8	-115.8	—	2.94Ω 3 3?-?? TONY
0030	6.8E-7	-192.1	-194.3	+1.1	+14.3	-1.8	-116.4	—	CON 2.94Ω
0130	6.8E-7	-192.1	-194.4	+1.1	+14.3	-1.9	-116.8	—	2.95Ω
0200	6.6E-7	-192.0	-194.6	+1.1	+14.3	-2.0	-117.3	—	2.98Ω
0230	6.4E-7	-192.0	-194.6	+1.2	+14.3	-2.1	-117.8	—	2.98Ω
0300	6.4E-7	-192.1	-194.4	+1.3	+14.3	-2.1	-118.2	—	3.04Ω
0330	6.1E-7	-192.1	-194.3	+1.3	+14.3	-2.2	-118.6	—	3.04Ω
0400	6.3E-7	-192.2	-194.0	+1.3	+14.3	-2.2	-119.0	—	2.99Ω
0430	6.2E-7	-192.9	-193.4	+1.3	+14.3	-2.4	-119.8	—	2.99Ω
0500	6.2E-7	-192.2	-193.3	+1.3	+14.3	-2.4	-120.1	—	3.02Ω
0530	6.3E-7	-192.2	-194.0	+1.3	+14.3	-2.4	-120.5	—	3.04Ω
0600	6.3E-7	-192.1	-193.6	+1.2	+14.3	-2.5	-120.8	—	3.07Ω
0630	6.3E-7	-19[illegible].6	-193.1	+1.2	+14.3	-2.5	-121.1	—	3.09Ω
0700	9E-7	-191.9	-194.4	+1.2	+14.3	-2.6	-121.4	—	3.11Ω
0730	6.8E-7	-192.2	-194.4	+1.3	+14.2	-2.6	-121.7	—	3.13Ω
0800	6.8E-7	-192.1	-194.5	+1.3	+14.2	-2.6	-121.9	-174.7	3.12Ω
0830	7.7×10^{-7}	-192.3	-194.6	1.3	14.2	-2.7	-122.2	-175.0	3.1
0900	6.7×10^{-7}	-192.1	-194.7	+1.2	+14.3	-2.7	-122.4	-175.2	3.18
0930	6.6E-7	-192.1	-194.7	+1.2	+14.2	-2.8	-122.7	-175.5	3.15
1000	6.4E-7	-192.1	-194.4	+1.2	+14.2	-2.8	-122.9	-175.7	3.16
1030	6.2E-7	-192.1	-194.0	+1.1	+14.2	-2.8	-123.2	-176.0	3.16Ω

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APPENDIX 20. TM COOLER ~~[illegible]~~ SYSTEM DATA SHEET

DATE TIME	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_e STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS
1100	6.2E-7	-192.1	-193.7	+1.2	+14.2	-2.8	-123.4	-176.2	3.20 Ω
130	6.8E-7	-192.1	-193.8	+1.3	+14.3	-2.8	-123.7	-176.4	3.17 Ω
200	6.2E-7	-192.2	-193.6	+1.3	+14.3	-2.9	-123.9	-176.6	3.22 Ω
1230	6.2E-7	-192.1	-193.2	+1.3	+14.3	-2.9	-124.0	-176.7	3.20 Ω
300	6.2E-7	-192.2	-192.6	+1.3	14.3	-2.9	-124.3	-177.0	3.23 Ω
330	6.3E-7	-192.2	-193.4	+1.3	14.3	-2.9	-124.4	-177.1	3.23 Ω
400	6.4E-7	-191.8	-193.3	+1.3	14.3	-2.9	-124.6	-177.2	3.23 Ω
430	6.1 E-7	-191.9	-192.4	1.3	14.3	-2.9	-124.8	-177.4	3.19 Ω
500	6.3 E-7	-191.8	-194.4	1.3	14.3	-3.0	-124.9	-177.5	3.18 Ω
530	6.2E-7	-191.7	-194.0	1.4	15.4	-2.8	-125.1	-177.6	3.19 Ω
600	6.4E-7	-192.1	-193.6	1.4	15.6	-2.6	-125.2	-177.7	3.19 Ω
630	6.3E-7	-192.4	-193.2	+1.4	+15.8	-2.3	-125.4	-177.9	3.15 Ω ART
700	7.0E-7	-185.2	-192.3	+18.6	+17.5	-1.8	-115.1	-172.0	2.86
730	6.8E-7	-180.9	-191.9	+18.9	+17.6	-1.6	-106.8	-128.8	3.14
800	4.3E-7	-148.1	-187.6	+19.3	+18.5	-1.2	-96.3	-85.2	3.15
830	8.6E-7	-146.8	-183.5	+21.2	+18.7	-0.9	-90.7	-65.9	3.29
1900	1.1E-6	-142.2	-177.8	+19.3	+19.2	-.5	-82.7	-42.4	3.41
930	1.4E-6	-136.2	-170.5	+20.2	+18.4	-.3	-73.9	-19.0	3.54
2000	1.7E-6	-132.5	-165.9	+20.2	+18.8	-.1	-68.8	-8.2	3.62
2030	2.5E-6	-126.2	-158.0	+20.2	+18.9	+.2	-60.1	+6.1	3.71
2100	1.8E-6	-76.6	-109.0	+20.7	+21.8	+1.0	-53.3	+14.5	3.76
2130	2.2E-6	-68.2	-94.0	+21.0	+22.3	+2.0	-49.3	+18.9	3.69
2200	2.9E-6	-65.2	-80.0	20.8	+22.3	+2.9	-43.2	+21.7	3.91
2230	6.4E-7	-58.9	-60.4	+23.4	+23.2	+4.5	-34.1	+17.0	3.83
2300	1.5E-6	-50.5	-52.4	+23.6	+23.8	+5.5	-28.8	+21.6	3.85 Ω

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APPENDIX 2J. TM COOLER TV TEST SYSTEM DATA SHEET

DATE TIME	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_e STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS
2330	4.2E-6	-45.4	-47.0	+23.5	+24.5	+6.8	-21.7	+25.3	3.88 Ω
2400	3.5E-7	-37.5	-39.4	+23.6	+25.2	+8.2	-14.0	+24.1	3.90 4-1-82 TONY
0030	3.4E-7	-31.8	-33.8	+23.7	+25.2	+9.2	-7.7	+23.3	3.90
0100	3.E-7	-30.4	-31.8	+23.7	+26.0	+10.2	-1.4	+23.4	3.90
0130	2.8E-7	-28.7	-29.8	+23.8	+26.5	+11.1	+3.8	+24.3	3.90
0200	2.3E-7	-27.1	-28.0	+23.9	+26.9	+11.9	+8.8	+25.4	3.91
0230	2.7E-7	-25.1	-25.6	+24.0	+27.3	+12.7	+13.2	+26.7	3.92
0300	2.5E-7	-23.6	-24.1	+24.0	+27.6	+13.3	+17.0	+26.2	3.93
0330	2.7E-7	-21.9	-22.2	+24.0	+28.1	+14.0	+20.5	+26.6	3.94
0400	2.5E-7	-20.1	-20.9	+24.1	+28.4	+14.5	+22.9	+25.2	3.94
0430	2.5E-7	-18.6	-18.3	+24.1	+28.6	+15.1	+25.8	+24.1	3.93
0500	2.5E-7	-16.6	-16.2	+24.2	+28.9	+15.7	+24.4	+24.0	3.92
0530	2.5E-7	-15.2	-14.6	+24.2	+29.1	+16.1	+24.1	+24.5	3.92
0600	2.5E-7	-13.8	-12.9	+24.2	+29.4	+16.6	+24.1	+25.3	3.92
0630	2.5E-7	-10.9	-10.2	+24.3	+30.0	+17.1	+22.2	+22.5	3.92
0700	2.5E-7	-9.8	-8.8	+24.3	+29.4	+17.5	+21.2	+20.3	3.92
0730	——	+11.8	11.2	25.8	29.8	18.2	21.0	22.6	3.90
0800	SHUTDOWN	FOR	B6	SELECTS		T.T.C.	# 4/1/82	I 172	
0830									
0900									
0930									
1000									

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POST-SELECT BAKE

APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET $60 \pm 10°C$ P14

DATE TIME 4-2-82	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_e STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS BB 21.7
1400	AMB	22.3	21.8	24.2	22.1	22.6	25.3	21.3	12 HOURS START BAKE
1430	9.2E-5	57.8	54.0	44.6	37.7	25.8	36.7	57.4	BB 58.5 (.5)
1500	6E-5	71.6	68.6	60.1	39.8	30.8	47.3	61.3	60.3
1530	3.3E-5	66.9	67.6	60.5	42.0	35.3	55.7	67.0	60.3
1600	2.2E-5	~~66.0~~ 63.6	~~66.0~~ 66.4	~~66.0~~ 61.1	~~66.0~~ 48.2	~~66~~ 38.4	58.1	65.8	62.1
1630	1.6E-5	61.5	65.4	61.3	49.5	40.5	60.2	65.0	61.9
1700	1.4E-5	59.0	63.9	61.5	50.3	42.2	61.9	63.9	61.2 AKT
1730	1.0E-5	59.3	64.5	61.6	54.7	43.4	62.9	63.3	61.2 ↓
1800	9.5E-6	58.9	64.9	61.5	59.0	45.5	63.8	63.1	62.5
1830	9.1E-6	59.6	65.4	61.5	61.1	47.6	64.1	63.8	62.5
1900	8.5E-6	60.2	66.3	61.3	62.5	48.4	65.3	64.0	62.5
1930	7.9E-6	60.1	66.2	61.2	63.2	49.1	65.9	64.3	61.2
2000	7.3E-6	59.8	66.4	61.1	64.0	50.5	66.6	64.7	62.2
2030	6.9E-6	59.9	66.4	61.1	64.0	51.0	66.9	65.1	62.2
2100	6.4E-6	60.5	67.3	61.3	63.0	51.4	68.0	65.5	62.1
2130	6.3E-6	60.2	67.3	61.3	61.2	51.7	68.1	65.3	62.4
2200	6.2E-6	60.0	67.3	61.5	59.7	51.3	68.4	65.5	60.4
2230	6.4E-6	60.1	67.3	61.6	60.0	51.2	68.6	65.8	60.5
2300	6.8E-6	60.1	67.3	61.6	60.5	51.2	68.9	65.9	61.0
2330	6.0E-6	60.2	67.3	61.7	61.0	51.4	69.1	66.0	61.3
2400	5.5E-6	60.3	67.3	61.8	60.1	51.4	69.3	66.1	62.0 Tony
0030	5.5E-6	60.4	67.3	61.8	59.1	51.3	69.4	66.1	61.9
0100	5E-6	60.4	67.3	61.9	59.1	51.2	69.4	66.2	61.1
0130	4.8E-6	60.5	67.3	61.9	59.6	51.1	69.5	66.2	60.4
0200	4.6E-6	60.5	67.3	62.0	59.2	51.2	69.6	66.2	60.9

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APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET P15

DATE TIME	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_2 STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS B.C #5
0230	4.4 E-6	60.5	67.3	62.0	60.0	51.3	69.7	66.2	61.2
0300	4.2 E-6	60.5	67.3	62.0	60.1	51.4	69.8	66.2	60.3
0330	4.2 E-6	60.6	67.3	62.1	60.1	51.6	69.8	66.2	61.7
0400	4 E-6	60.7	67.4	62.1	60.2	51.7	69.8	66.2	63.8
0430	3.7 E-6	59.5	66.2	62.1	58.2	51.3	69.8	66.1	63.3
0500	3.6 E-6	59.1	65.9	62.2	57.7	51.0	69.5	65.6	64.0
0530	3.4 E-6	62.1	68.4	62.2	59.4	51.2	69.5	65.8	62.7
0600	3.8 E-6	62.5	68.9	62.2	59.7	51.5	69.9	66.5	63.6
0630	3.4 E-6	62.7	69.1	62.3	59.9	51.7	70.2	67.1	62.7
0700	3.7 E-6	60.5	69.0	61.5	59.5	50.5	70.4	67.4	61.6
0730	3.3 E-6	60.5	66.7	60.9	57.5	50.7	70.3	66.9	62.8
0800				END	BAKEOUT				
0830					0800	4/3/82	T.C.C		
				START	POST-	BALANCE	COOLDOWN	T.C.C	0800 4/3/82
0832	1.0x10-6	-188.2	-185.4	57.7	47.4	44.3	62.4	54.1	
0900	5.4x10-7	-188.8	-193.6	51.2	42.4	37.1	49.8	26.4	50.8
0930	4.6 E-7	-190.1	-194.3	41.9	36.6	30.4	33.8	-6.4	46.7
1000	4.1 E-7	-191.1	-194.4	33.1	31.7	25.2	19.5	-31.9	42.9
1030	3.8 E-7	-191.4	-194.0	26.1	28.1	21.6	8.7	-47.7	39.9
1100	3.6 E-7	-191.4	-193.2	19.7	25.0	18.5	-1.0	-61.0	37.2
1130	4.4 E-7	-192.0	-195.3	13.3	22.1	15.6	-10.5	-72.9	34.4 3.49
1200	4.8 E-7	-192.0	-195.2	8.0	19.7	13.4	-18.3	-81.9	32.0 3.44
1230	3.3 E-7	-192.3	-195.1	3.1	17.7	11.4	-25.3	-89.7	29.9 3.40
1300	3.2 E-7	-192.1	-194.6	.4	16.1	9.7	-31.1	-95.8	28.4 3.36

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APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET P16

DATE TIME	CHAMBER PRESSURE mm HG	SBS LN2 STAGE TEMP °C (#1)	SBS LNe STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS BB#5 / DVM
1330	3.1E-7	-192.3	-194 0	.9	16.3	8.3	-37.1	-101.9	26.4 / 3.31
1400	4.4E-7	-192.5	-194.5	1.6	13.9	7.1	-42 0	-106.8	24.9 / 3.29
1430	4.2 E-7	-192.4	-194.4	1.5	11.9	5.5	-48.0	-112.5	23.3 / 3.26
1500	4.2E-7	-192.5	-194.4	1.5	10.9	3.6	-51.8	-116.1	22.2 / 3.24
1530	4.2E-7	-192.7	-194.7	1.4	9.7	3.5	-56.0	-120.0	21.0 / 3.21
16:00	4.2E-7	-192.6	-194.6	1.7	8.5	2.3	-60.6	-124.1	19.6 / 3.19
16.30	2.8E-7	-192.8	-194.4	1.4	8.1	1.5	-63.1	-126.5	18.9 / 3.18
1700	2.8X10-7	-192.7	-194.1	1.4	7.0	0.8	-66.6	-129.5	17.8 / 3.16
1730	2.7E-7	192.7	-193.7	1.4	6.0	0.1	-69.6	-132.1	17.0 / 3.14
1800	2.7 E-7	192.7	-193.2	1.4	5.6	0.5	-72 4	-134.4	16.2 / 3.13
1830	3.8 E-7	192.7	-194.4	1.5	4.8	-1.2	-75.4	-137.1	15.4 / 3.11
1900	3.8 E-7	192.7	-194.4	+1.5	4.4	-1.8	-78.1	-139.4	14.6 / 3.11
1930	3.8E-7	-191.6	-194.8	+1.5	7.5	-1.9	-80.1	-141.1	14.1 / 3.11
2000	4.0E-7	-191.9	-194.8	1.6	12.8	-1.4	-82.4	-143.0	13.6 / 3.09
2030	3.5E-7	-192.0	-194.6	1.6	11.5	-1.2	-84.8	-145.0	13.5 / 3.09
2100	3.8 E-7	-192.0	-194.5	1.6	6.3	-1.6	-86.8	-146.6	13.5 / 3.08
2130	2.8 E-7	-192.2	-194.0	1.6	10.1	-1.9	-88.3	-147.9	13.4 / 3.08
2200	2.8 E-7	-192.1	-193.5	1.6	11.2	-1.8	-90.3	-149.5	13.1 / 3.07
2230	2.8 E-7	-192.2	-193.1	1.6	11.2	-1.8	-92.0	-150.9	12.9 / 3.06
2300	3.0 E-7	-192.1	-193.0	1.7	13.0	-1.6	-93.6	-152.2	12.9 / 3.07
2330	3.1 E-7	-192.1	-194.5	1.7	13.0	-1.5	-95.1	-153.5	12.9 / 3.06
2400	3.1 E-7	-192.1	-194.4	1.7	13.0	-1.4	-96.3	-154.5	12.9 / 3.06 Tony
0030	2.8 E-7	-192.2	-194.4	+1.7	+13.0	-1.5	-98.1	-156.0	+12.8 / 3.05
0100	3.4 E-7	-192.2	-194.6	+1.8	+13.0	-1.5	-99.2	-157.0	+12.8 / 3.05
0130	3.4 E-7	-192.2	-194.4	+1.8	+13.0	-1.6	-100.5	-158.0	+12.7 / 3.05

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APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET

P17

DATE TIME	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_e STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS BB #5	DVM
0200	2.35 E-7	-192.0	-194.2	+1.8	+13.0	-1.7	-101.7	-159.0	+12.6	3.05
0230	2.35 E-7	-192.1	-193.9	+1.8	+13.0	-1.8	-102.8	-159.9	+12.5	3.04
0300	2.3 E-7	-192.3	-193.7	+1.9	+13.0	-1.9	-103.8	-160.7	+12.4	3.05
0330	2.3 E-7	-192.1	-194.5	+1.8	+19.4	-2.5	-104.8	-161.6	+12.3	3.04
0400	2.3 E-7	-193.2	-194.6	+1.9	+20.4	-2.2	-105.7	-162.3	+12.0	3.04
0430	3.2 E-7	-193.2	-194.4	+1.8	+12.4	-1.3	-106.7	-163.1	+11.8	3.04
0500	3.2 E-7	-192.8	-193.7	+1.7	+16.5	-1.3	-107.6	-163.9	+12.0	3.04
0530	2.3 E-7	-192.5	-194.5	+1.9	+13.0	-1.7	-108.5	-164.6	+12.1	3.06
0600	2.3 E-7	-192.5	-194.4	+1.7	+15.8	-1.7	-109.4	-165.4	+12.0	3.06
0630	2.3 E-7	-192.5	-194.4	+1.8	+15.8	-1.6	-110.1	-166.0	+12.0	3.06
0700	2.5 E-7	-192.4	-194.4	+1.8	+15.8	-1.6	-110.8	-166.6	+12.0	3.08
0730	2.5 E-7	-192.4	-194.5	+1.8	+15.8	-1.6	-111.5	-167.1	+12.0	3.03
0800	2.4 E-7	-192.4	-194.6	+1.7	+15.8	-1.6	-112.1	-167.7	+12.0	3.04
0830	2.4 E-7	-192.3	-194.5	1.7	15.8	-1.6	-112.8	-168.2	12.0	3.03
0900	2.4 E-7	-192.4	-194.5	1.7	15.8	-1.7	COLLECTING	DATA	11.9	3.04
0930	~~2.3E-7~~	~~-193.1~~	~~-194.0~~	~~1.6~~	~~15.8~~	~~-1.7~~	~~-114.6~~	~~-169.7~~	~~150.0~~	3.06
1000	2.3 E-7	-193.1	-194.0	1.6	15.8	-1.7	-114.6	-169.7	150.0	~~3.07~~ 3.06
1030	2.3E-7	-192.6	-193.8	1.5	15.8	-1.6	-115.2	-170.2	90.0	3.07
1100	2.4E-7	-192.5	-194.4	1.4	15.9	-1.5	-115.7	-170.5	80.0	3.11
1130	2.4E-7	-192.6	-194.4	1.3	15.8	-1.6	-116.2	-171.0	57.4	~~3.15~~ 3.13
1200	2.4E-7	-192.3	-194.4	1.3	15.8	-1.6	-116.7	-171.5	41.8	3.15
1230	2.6E-7	-192.8	-194.3	1.2	15.8	-1.6	-117.2	-171.8	32.9	3.12
1300	2.8E-7	-192.4	-194.3	1.2	15.8	-1.7	-117.6	-172.2		3.15
1330	2.7E-7	-192.7	-194.4	1.1	15.8	-1.7	-118.0	-172.6		3.15
1400	2.7E-7	-192.5	-194.4	+1.1	+15.8	-1.7	-118.5	-172.9		3.17

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P18

APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET

DATE TIME	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (Ø1)	SBS LN_e STAGE TEMP °C (Ø2)	RC DOOR TEMP °C (Ø3)	RC MOUNT PLTFM TEMP °C (Ø4)	RC AMBIENT HOUSING TEMP °C (Ø6)	RC INT STAGE TEMP °C (Ø8)	RC COLD STAGE TEMP °C (Ø9)	REMARKS
1430	2.6E-7	-192.6	-194.4	1.1	15.8	-1.7	-118.9	-173.2	3.16
1500	2.6E-7	-192.6	-194.2	1.0	15.8	-1.7	-119.2	-173.5	3.18
1530	2.4E-7	-192.7	-194.5	1.0	15.8	-1.7	-184.6	-173.8	3.24
1600	2.4E-7	-192.8	-194.6	1.0	15.8	-1.7	-120.0	-174.2	3.25
1630	2.4E-7	-194.0	-194.7	1.1	15.8	-1.7	-120.3	-174.4	3.24
1700	2.4E-7	-193.6	-194.7	1.3	15.9	-1.7	-120.6	-174.7	3.24
1730	2.4E-7	-192.7	-194.4	1.5	15.9	-1.7	-120.9	-175.0	3.24
1800	2.4E-7	-192.8	-194.2	1.6	15.9	-1.7	-121.2	-175.2	3.25
1830	2.4E-7	-192.6	-193.7	1.7	15.9	-1.8	-121.6	-175.5	3.26
1900	2.6E-7	-192.6	-195.2	1.7	15.9	-1.8	-121.8	-175.7	3.23
1930	2.6E-7	-192.5	-194.5	1.8	15.9	1.8	-122.1	-175.9	3.24
2000	2.7E-7	-192.6	-194.3	1.8	15.9	-1.9	-122.3	-176.1	3.25
2030	2.5E-7	-192.4	-194.4	1.8	16.8	-1.9	-122.6	-176.3	3.23
2100	2.5E-7	-192.6	-184.4	1.8	16.8	-1.8	-122.8	-176.5	3.22
2130	2.5E-7	-193.2	-196.4	1.8	16.8	-1.8	-123.0	-176.7	3.22
2200	2.2E-7	-192.9	-194.4	1.8	16.8	-1.8	-123.3	-176.9	3.2[illegible]
2230	2.3E-7	-192.6	-194.1	1.9	16.8	-1.8	-123.5	-177.1	3.23
2300	2.5E-7	-189.9	-194.9	1.9	17.2	-1.8	-123.7	-177.3	3.23
2330	2.8E-7	-190.3	-194.4	1.9	17.1	-1.8	-123.9	-177.4	3.24
2400	2.3E-7	-190.4	-194.3	+1.9	+17.1	-1.8	-124.1	-177.6	3.22 Tony
0030	2.25E-7	-190.2	-194.5	+1.9	+17.1	-1.8	-124.3	-177.6	3.25 &
0100	3.E-7	-190.2	-194.7	+1.9	+17.1	-2.1	-124.5	-178.0	3.26
0130	3.E-7	-189.9	-194.6	+1.9	+17.9	-2.2	-124.6	-178.1	3.24
0200	3.E-7	-190.8	-194.5	+1.9	+19.1	-2.0	-124.8	-178.2	3.24
0230	2.8E-7	-190.0	-194.5	+1.9	+19.3	-1.9	-124.9	-178.4	3.24

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I / 178

APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET

P19

DATE TIME	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (Ø1)	SBS LNe STAGE TEMP °C (Ø2)	RC DOOR TEMP °C (Ø3)	RC MOUNT PLTFM TEMP °C (Ø4)	RC AMBIENT HOUSING TEMP °C (Ø6)	RC INT STAGE TEMP °C (Ø8)	RC COLD STAGE TEMP °C (Ø9)	REMARKS
0300	3.8 E-7	-190.3	-194.6	+1.9	+19.2	-1.8	-125.1	-178.5	3.26 Ω
0330	3.5E-7	-190.2	-194.5	+1.9	+19.2	-1.8	-125.2	-178.6	3.26 Ω
0400	3.5E-7	-189.5	-194.4	+1.9	+19.2	-1.9	-125.3	-178.7	3.22 Ω
0430	3.4E-7	-190.5	-194.4	+1.9	+19.2	-2.0	-125.5	-178.8	3.22 Ω
0500	3.4E-7	-189.6	-194.4	+1.9	+19.1	-2.1	-125.6	-179.0	3.22 Ω
0530	2.3E-7	-189.6	-194.7	+1.9	+22.2	-1.6	-125.7	-179.1	3.25 Ω
0600	2.2E-7	-190.0	-194.7	+1.9	+19.4	-1.6	-125.8	-179.2	3.25 Ω
0630	2.2E-7	-190.3	-194.4	+1.9	+19.0	-1.9	-125.9	-179.3	3.26 Ω
0700	2.2E-7	-190.1	-194.4	+1.9	+19.0	-2.2	-126.0	-179.4	3.26 Ω
0730	2.3E-7	-189.7	-194.4	+1.9	+19.1	-2.3	-126.1	-179.5	3.22 GOING TO
0800	2.5E-7	-189.2	-209.0	1.9	19.1	-2.4	-126.2	-179.5	3.255 Ω WITH T.C.
0830	3.7E-5	-181.7	-247.5	.9	19.3	-2.4	-126.2	-179.9	3.25 A-MOUNT [illegible] TEMP OFF .9
0900	4.0×10^{-7}	-191.7	-247.5	1.7	19.6	-2.4	-125.9	-180.6	3.22
0930	3.6E-7	-189.7	-247.6	1.7	19.8	-2.3	-125.8	-180.9	3.23
1000	2.3E-7	-191.9	-247.1	1.7	20.0	-2.1	-125.6	-181.5	3.22
1030	2.0E-7	-191.6	-245.9	1.7	20.0	-2.0	-125.5	-182.0	3.22
1100	2.0E-7	-191.2	-244.5	1.7	20.0	-1.9	-125.3	-182.4	3.22
1130	1.5E-7	-191.0	-247.6	1.6	19.9	-1.9	-125.1	-183.0	3.21 LNe
1200	1.4E-7	-191.3	-247.5	1.6	20.1	-1.8	-125.5	-183.3	3.21
1230	1.38×10^{-7}	-190.5	-246.4	1.6	20.1	-1.8	-125.8	-183.9	3.23 Ω
1300	1.3E-7	-189.4	-245.5	1.5	20.0	-1.8	-126.0	-184.2	3.22 LNe
1330	1.4E-7	-191.2	-247.6	1.3	19.9	-1.7	-126.2	-184.6	3.22
1400	1.3E-7	-190.1	-247.6	1.2	19.2	-1.7	-126.4	-185.0	3.23
1430	1.3E-7	-190.7	-247.6	1.1	20.1	-1.7	-126.6	-185.3	3.28
1500	1.3E-7	-189.8	-247.3	1.0	20.1	-1.7	-126.8	-185.7	

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APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET

P20

DATE TIME 4-5-82	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_e STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS
1530	2×10^{-6}	-191.0	-247.6	+1.0	20.0	-1.6	-127.1	-186.3	LNe
1600	1.4E-4	-185.9	-247.6	1.0	20.0	-1.4	-127.1	-186.5	
1630	2.0E-5	-192.2	-247.3	1.0	20.1	-1.1	-127.3	-186.7	
1700	1.6E-6	-191.9	-247.6	1.2	20.2	-0.9	-127.4	-186.9	
1730	9.9E-7	-191.6	-247.6	1.3	+20.3	-.6	-127.6	-187.1	
1800	9.5E-7	-191.3	-247.6	1.4	+20.3	-0.5	-127.7	-187.2	
1830	5.7E-7	-190.8	-247.5	1.5	20.1	-0.6	-127.4	-187.5	LNe
1900	2.5E-7	-191.3	-247.5	1.4	+19.7	-0.4	-127.1	-187.7	
1930	2.2E-7	-191.5	-247.6	+0.6	+19.8	-0.4	-126.9	-187.8	
2000	1.8E-7	-191.0	-247.5	+1.3	+18.0	-0.4	-126.7	-188.0	
2030	1.9E-7	-190.9	-246.7	+1.9	+18.9	-.09	-126.5	-188.2	2035 LNE
2100	1.4E-7	-191.0	-247.5	+1.5	+18.2	-1.1	-126.3	-188.4	SETTING UP FOR LTA TESTING
2130	1.3E-7	-191.8	-247.6	+1.3	+19.3	-1.3	-126.1	-188.6	21:35, B5,6,7 BIAS POWER ON, 2.3 V TO
2200	1.7E-7	-191.5	-247.6	+1.2	+19.3	-1.3	-126.0	-188.6	COLD STAGE [illegible] HEATER FOR SIMULAT-
2230	1.7E-7	-190.8	-247.5	+1.2	+19.3	-1.3	-125.8	-188.6	ING ENVIRONMENTAL LOADS TO COLD STAGE
2300	1.2E-7	-190.9	-246.1	+1.3	+19.4	-.7	-125.6	-188.6	T.T.C
2330	9.5E-8	-190.3	-247.5	+1.4	+18.9	-.4	-125.4	-188.6	23:05 LNE
4-6-82 2400	1.1E-7	-189.6	-247.6	+1.5	+18.9	-.3	-125.2	-188.7	LTA QUAL Tom 4/6/82
0030	1.2E-7	-189.7	-247.5	+1.5	+18.7	-.3	-125.1	-188.7	
0100	1.1E-7	-190.7	-247.0	+1.5	+18.6	-.3	-124.9	-188.7	LNE
0130	1.1E-7	-190.1	-247.5	+1.6	+18.5	-.4	-124.8	-188.7	
0200	1.1E-7	-190.1	-247.6	+1.6	+18.5	-.4	-124.6	-188.7	
0230	3.E-7	-174.6	-247.5	+1.6	+18.6	-.4	-124.5	-188.7	
0300	2.7E-7	-191.5	-247.[illegible]	+1.6	+18.5	-.4	-124.4	-188.7	CHANGED LNE TANKS
0330	6.8E-8	-192.5	-247.5	+1.7	+18.6	-.4	-124.2	-188.7	& FILLED [illegible]

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APPENDIX 40. TM COOLER LOW TEMPERATURE ACHIEVABLE DATA SHEET P20A

DATE TIME 4/5/82	SBS LN_e TEMP °C #2	RC DOOR TEMP °C #3	RC MOUNT TEMP °C #4	AMB HOUSING TEMP °C #6	INT STAGE TEMP °C #8	COLD STAGE TEMP °C #9	PREAMP FIN TEMP °C	CFP TEMP DIODE J2-1,2 V	CFP TEMP DIODE J2-3,4 V	COOLER DOOR HEATER J3-35,36 V	A	COOLER INT STAGE HEATER J2-9,10 V	A	COOLER COLD STAGE HEATER J2-7,8 V	mA	CFP BIAS PWR ON/OFF	COMMENTS, REMARKS, TEST PHASE
2100	-247.5	+1.5	+18.2	-1.1	-126.3	-188.4	NOT READ	NOT READ	NOT READ T.T.C	NOT	READ	9.7	.053	2.3	8.4	ON	
2130	~~-191.8~~ -247.6	1.3	19.3	-1.3	-126.1	-188.6	T.T.C			(CONTROLLER)							
2200	-247.6	1.2	19.3	-1.3	-126.0	-188.6											
2230	-247.5	1.2	19.3	-1.3	-125.8	-188.6											
2300	-246.1	1.3	19.4	-0.7	-125.6	-188.6											
2330	-247.5	1.4	18.9	-0.4	~~-125~~.4	-188.6											LOW TEMP
4-6-82 2400	-247.6	1.5	18.9	-0.3	-125.2	-188.7											
0030	-247.5	1.5	18.7	-0.3	-125.1	-188.7											ACHIEVABLE
0100	-247.0	1.5	18.6	-0.3	-124.9	-188.7											
0130	-247.5	1.6	18.5	-0.4	-124.8	-188.7											
0200	-247.6	1.6	18.5	-0.4	-124.6	-188.7											84.45 K
0230	-247.5	1.6	18.6	-0.4	-124.5	-188.7											1.7 °C 4 HR QUAL TIME FRAME
0300	-247.4	1.6	18.5	-0.4	-124.4	-188.7											
0330	-247.5	1.7	18.6	-0.4	-124.2	-188.7				NOT	READ						4/6/82 0400
0400	-247.6	1.7	18.6	-0.4	-124.1	-188.7	NOT READ T.T.C	NOT READ T.T.C	NOT READ T.T.C	(CONTROLLER)		9.7	.053	2.3	8.4	ON	

I/172

APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET

DATE TIME 4-6-82	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_e STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS
0400	8.5E-8	-192.1	-247.5	+1.7	+18.6	-.4	-124.1	-188.7	LTA QUAL FINISH 4HRS
0430	8.6E-8	-191.8	-247.6	-0	+15.1	-.5	-124.0	-188.7	
0500	9E-8	-191.5	-247.6	-6.7	+9.6	-2.3	-124.5	-188.0	
0530	1.1E-7	-191.5	-247.6	-12.2	+9.4	-4.2	-124.8	-187.1	LNE
0600	.5E-7	-191.5	-247.5	-16.5	+9.3	-5.5	-125.1	-186.6	
0630	.5E-7	-190.9	-247.6	-20.5	+9.3	-6.5	-125.4	-186.3	
0700	.5E-7	-190.0	-247.6	-24.2	+9.3	-7.3	-125.7	-186.8	
0730	1.1E-7	-190.9	-247.2	-27.5	+9.2	-7.9	-126.0	-186.0	
0800	1.2E-7	-190.3	-247.4	-30.9	+9.2	-8.4	-126.4	-186.0	
0830	1.2E-7	-190.1	-247.6	-33.7	+9.2	-8.7	-126.7	-185.9	LNe
0900	1.2E-7	-190.8	-247.6	-36.7	+8.2	-9.1	-127.0	-185.9	
0930	1.2E-7	-190.3	-247.6	-39.1	+8.2	-9.3	-127.3	-185.9	
1000	1.2E-7	-189.1	-247.1	-37.7	+8.2	-9.6	-127.6	-185.9	
1030	1.2E-7	-189.5	-247.3	-37.7	+8.2	-9.7	-127.9	-185.9	
1100	1.2E-7	-189.8	-247.6	-39.6	+9.0	-9.8	-128.2	-185.9	LNe FILL
1130	1.2E-7	-189.6	-247.7	-40.5	+9.1	-9.8	-128.5	-185.9	
1200	1.2E-7	-189.7	-247.5	-38.6	+9.6	-9.7	-128.8	-185.9	
1230	1.2E-7	-188.4	-247.1	-38.6	+9.8	-9.7	-129.0	-185.9	
1300	1.2E-7	-189.2	-247.6	-38.5	+9.8	-9.7	-129.3	-185.9	LNe FILL
1330	1.2E-7	-188.3	-247.6	-38.6	+9.7	-9.7	-129.6	-186.0	
1400	1.2E-7	-188.3	-247.7	-38.8	9.8	-9.6	-129.8	-185.9	
1430	1.2E-7	-189.0	-247.7	-38.7	9.8	-9.6	-130.0	-185.9	
1500	1.3E-7	-188.4	-247.6	-38.6	9.7	-9.6	-130.2	-185.9	
1530	1.2E-7	-180.8	-247.6	-38.6	9.7	-9.6	-130.4	-185.9	
1600	2.6E-7	-191.1	-247.6	-38.5	9.7	-9.5	-130.6	-185.9	1/172

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P22

APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET

DATE TIME 4-6-82	CHAMBER PRESSURE mm HG	SBS LN2 STAGE TEMP °C (01)	SBS LNe STAGE TEMP °C (02)	RC DOOR TEMP °C (03)	RC MOUNT FLTFM TEMP °C (04)	RC AMBIENT HOUSING TEMP °C (06)	RC INT STAGE TEMP °C (08)	RC COLD STAGE TEMP °C (09)	REMARKS
1630	2.0E-7	-191.0	-247.6	-38.5	+9.5	-9.0	-130.9	-185.9	
1700	1.6E-7	-192.0	-247.5	-38.6	+9.2	-8.5	-131.1	-185.9	
1730	1.6E-7	-192.2	-247.5	-38.6	+9.2	-8.1	-131.2	-185.9	17:35 LNe
1800	1.3E-7	-191.9	-247.5	-38.6	+9.2	-8.4	-131.4	-185.9	
1830	1.2E-7	-191.8	-247.6	-38.6	+9.2	-9.0	-131.6	-186.0	
1900	1.2E-7	-191.6	-247.6	-38.7	+9.2	-9.2	-131.7	-186.1	
1930	1.2E-7	-191.4	-247.5	-39.1	+8.0	-9.5	-131.9	-186.5	
2000		MISSED	READING	WHILE	CHANGING	NEON	TANK	T.T.C	CHANGED TO 3RD NEON TANK!
2030	1.2E-7	-192.8	-247.7	-39.5	9.3	-8.7	-132.1	-186.6	(LOOKS LIKE
2100	1.2E-7	-192.5	-247.7	-38.7	6.0	-8.7	-132.3	-187.0	ABOUT 15HRS
2130	1.2E-7	-192.2	-247.2	-39.3	+9.3	-8.9	-132.5	-186.3	PER 75L. TANK)
2200	1.2E-7	-192.2	-247.7	-39.4	+9.3	-9.1	-132.6	-185.4	90K CONTROL TEST
2230	1.2E-7	-191.9	-247.5	-39.4	+9.3	-9.0	-132.7	-185.0	START
2300	1.2E-7	-191.9	-247.0	-39.4	+9.3	-8.5	-132.8	-184.8	23:10 LNe
2330	1.2E-7	-191.9	-247.6	-39.6	+9.3	-7.9	-132.9	-184.6	
2400	1.2E-7	-191.4	-247.7	-39.6	+9.3	-7.4	-133.1	-188.2	Tony 4-7-82
4-7 0030	1.2 E-7	-191.4	-247.7	-39.5	+9.3	-7.2	-133.2	-184.4	
0100	1.2 E-7	-190.8	-247.5	-39.5	+9.3	-7.0	-133.3	-184.4	
0130	1.2 E-7	-190.7	-247.7	-39.4	+11.5	-6.5	-133.4	-184.4	
0200	1.2 E-7	-190.8	-247.7	-39.4	+11.0	-6.6	-133.4	-184.4	
0230	1.2 E-7	-191.0	-247.7	-39.4	+12.8	-6.2	-133.5	-184.3	
0300	1.2 E-7	-190.4	-247.5	-39.4	+16.4	-5.0	-133.1	-184.3	LNe
0330	1.2 E-7	-190.8	-247.7	-38.3	+15.7	-4.5	-133.6	-184.3	
0400	1.2 E-7	-190.8	-247.7	-38.3	+16.7	-4.0	-133.6	-184.3	
0430	1.[illegible] E-7	-190.0	-247.6	-34.3	+18.4	-3.3	133.7	-184.3	Cont control [illegible] 6 it keeps going down

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I / 172

SIZE A | CODE IDENT NO. 11323 | NUMBER 16188 | SCALE | REV B | SHEET 36

APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET

P23

DATE TIME 8-7-82	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (01)	SBS LN_e STAGE TEMP °C (02)	RC DOOR TEMP °C (03)	RC MOUNT PLTFM TEMP °C (04)	RC AMBIENT HOUSING TEMP °C (06)	RC INT STAGE TEMP °C (08)	RC COLD STAGE TEMP °C (09)	REMARKS
0500	1.5 E-7	-190.3	-247.6	-39.3	+17.9	-2.8	-133.7	-184.3	47.8c LNE
0530	1.5 E-7	-191.3	-247.6	-39.3	+18.7	-2.3	-133.7	-184.3	
0600	2 E-7	-191.0	-247.6	-39.1	+19.2	-1.9	-133.7	-184.4	
0630	2 E-7	-190.9	-247.6	-39.3	+19.3	-1.6	-133.7	-184.3	
0700	2 E-7	-191.0	-247.6	-39.4	+19.6	-1.2	-133.7	-184.3	
0730	2 E-7	-191.2	247.6	-39.4	+19.7	-1.0	-133.7	-184.3	LNE
0800	1.4E-7	-184.2	-247.7	-39.5	+6.2	-2.3	-133.7	-184.4	T.T.C
0830	1.3E-7	-191.2	-247.7	-39.6	+6.7	-4.1	-133.7	-184.8	
0900	1.3 E-7	-191.2	-247.7	-39.6	6.7	-4.6	-133.7	-184.4	
0930	1.3 E-7	-191.0	-247.5	-39.7	6.6	-5.8	-133.8	-183.8	
1000	3.9 E-7	-191.0	-247.5	-39.7	6.6	-7.4	-133.9	-182.9	
1030	1.6 E-7	-190.5	-247.7	-39.8	6.5	-8.2	-133.9	-182.3	LNe
1100	1.4E-7	-190.8	-247.7	-39.9	6.5	-8.9	-134.0	-181.6	
1130	1.3E-7	-190.4	-247.7	-40.1	6.5	-9.6	-134.1	-180.8	
1200	1.7 E-7	-190.4	-247.6	-40.0	9.3	-9.5	-134.1	-180.5	LNe
1230	1.2E-7	-190.5	-247.7	-39.9	10.0	-8.6	-134.2	-180.2	
1300	1.2E-7	-189.9	-247.6	-39.8	9.3	-8.2	-134.3	-180.1	
1330	1.2E-7	-190.2	-247.7	-39.8	9.3	-7.8	-134.3	-180.0	
1400	1.2 E-7	-191.3	-247.7	-39.7	8.4	-7.5	-134.4	-179.9	
1430	1.3 E-7	-191.0	-247.6	-39.7	10.7	-7.1	-134.4	-179.9	
1500	1.2 E-7	-191.0	-247.7	-39.7	7.5	-7.1	-134.5	-179.8	
1530	1.2E-7	-192.1	-247.7	-39.2	6.2	-7.4	-134.5	-179.8	
1600	1.2 E-7	-191.6	-247.6	-39.5	7.5	-7.4	-134.6	-179.8	CHANGED LN_2 TANK
1630	1.2E-7	-191.8	-247.5	-39.6	+7.6	-7.4	-134.6	-179.8	LNe (16:40)
1700	1.2E-7	-192.4	-247.7	-39.6	+7.6	-7.4	-134.7	-179.8	

I
172

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SIZE	CODE IDENT NO.	NUMBER
A	11323	16188
SCALE	REV B	SHEET 36

P24

APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET

DATE TIME	CHAMBER PRESSURE mm HG	SDS LN_2 STAGE TEMP °C (01)	SDS LH_e STAGE TEMP °C (02)	RC DOOR TEMP °C (03)	~~RC~~ MOUNT PLTFM TEMP °C (04)	RC AMBIENT HOUSING TEMP °C (06)	RC INT STAGE TEMP °C (08)	RC COLD STAGE TEMP °C (09)	REMARKS
17:30	1.2E-7	-191.9	-247.7	-39.6	+7.5	-7.6	-134.7		COLD STAGE PRT REMOVED
18:00	1.2E-7	-192.2	-247.7	-39.6	+7.5	-7.7	-134.7		(105K BACKUP
18:30	1.2E-7	-192.0	-247.7	-39.6	+7.5	-8.0	-134.7		CONTROL TESTS) T.T.C
19:00	1.2E-7	-191.8	-247.5	-39.7	+7.5	-8.8	-134.8		ADDED LNE (19:15)
19:30	1.2E-7	-192.1	-247.6	-39.8	+7.5	-9.6	-134.9		
20:00	1.2E-7	-192.0	-247.6	-39.9	+7.4	-9.8	-134.9		
20:30	1.2E-7	-191.8	-247.7	-39.9	+7.4	-10.0	-134.9		START 105K BACKUP
21:00	1.2E-7	-191.4	-247.6	-39.9	+7.4	-10.3	-134.8		CONTROL TEST
21:30	1.2E-7	-191.4	-246.7	-39.9	+7.4	-10.5	-135.0		
22:00	1.2E-7	-191.5	-246.1	-39.9	+7.4	-10.6	-135.1		22:10 LNE
22:30	1.2E-7	-191.7	-247.6	-39.9	+7.4	-10.7	-135.1		
23:00	1.2E-7	-191.8	-247.2	-39.8	+7.4	-10.8	-135.2		
23:30	1.2E-7	-191.5	-247.7	-39.7	+7.4	-10.9	-135.3		
24:00	1.2E-7	-191.7	-247.6	-39.8	+7.4	-10.9	-135.3		TONY 4-8-82
24:30	1.2E-7	-191.2	-247.4	-39.7	+7.4	-10.9	-135.3		LNE
01:00	1.2E-7	-191.6	-247.5	-39.6	+7.4	-10.9	-135.4		
01:30	1.2E-7	-190.9	-247.5	-39.6	+7.4	-11.1	-135.4		
02:00	1.5E-7	-190.2	-247.7	-39.6	+7.4	-11.0	-135.5		
02:30	2.5E-7	-191.3	-247.6	-39.6	+8.2	-11.0	-135.5		
03:00	2.5E-7	-191.7	-247.6	-39.9	+8.7	-10.8	-135.6		LNE
03:30	2.5E-7	-191.5	-247.6	-40.0	+8.3	-10.8	-135.6		
04:00	1.5E-7	-191.3	-247.5	-38.1	+8.3	-10.7	-135.6		
04:30	2.E-7	-191.3	-247.7	-38.0	+8.3	-10.7	-135.7		
05:00	2.E-7	-190.3	-247.4	-38.0	+8.3	-10.6	-135.7		LNE
05:30	2.E-7	-190.3	-247.3	-37.8	+8.3	-10.6	-135.7		

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SIZE	CODE IDENT NO.	NUMBER
A	11323	16188
SCALE	REV B	SHEET 36

P25

APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET

DATE TIME	CHAMBER PRESSURE mm HG	SBS LN2 STAGE TEMP °C (01)	SBS LNe STAGE TEMP °C (02)	RC DOOR TEMP °C (03)	RC MOUNT PLTFM TEMP °C (04)	RC AMBIENT HOUSING TEMP °C (06)	RC INT STAGE TEMP °C (08)	RC COLD STAGE TEMP °C (09)	REMARKS
4-8-82 0600	2. E-7	-190.2	-247.6	-37.8	+8.3	-10.6	-135.8		4-8-82
0630	2. E-7	-190.2	-247.6	-38.1	+8.2	-10.5	-135.8		
0700	2. E-7	-190.8	-247.6	-38.1	+8.3	-10.5	-135.8		
0730	2. E-7	-189.6	-247.3	-38.1	+8.3	-10.5	-135.8		∴ LNE
0800	1.2E-7	-189.9	-247.7	-38.0	8.3	-10.5	-135.9		TERMINATE 105K BACKUP TEST
0830	1.2 E-7	-191.8	-245.6	-38.1	8.3	-10.5	-135.9		START 105K PRIMARY TEST
0900	1.3 E-5	-191.6	-230.5	-38.0	8.3	-10.4	-135.9		
0930	1.0 E-5	-190.9	-210.8	-38.0	8.3	-9.9	-135.9		
1000	2.4E-6	-190.6	-201.7	-38.0	8.3	-9.1	-135.9	-170.3	
1030	1.1E-6	-191.5	-193.2	-39.4	-0.3	-9.1	-135.7	-170.3	
1100	8.5E-7	-191.2	-190.0	-37.5	6.5	-8.9	-135.7	-170.2	
1130	3.4E-7	-191.5	-195.0	-39.5	8.4	-8.3	-135.6	-170.0	
1200	2.4E-7	-191.2	-195.0	-39.8	8.5	-7.6	-135.5	-170.1	
1230	2.3E-7	-191.0	-195.0	-39.9	4.7	-7.4	-135.4	-170.1	
1300	2.8E-7	-190.9	-195.0	-40.0	4.7	-7.5	-135.3	-170.2	
1330	3.8E-7	-190.8	-195.1	-40.0	4.7	-7.5	-135.2	-170.1	
1400	3.1 E-7	-190.5	-195.0	-40.0	4.7	-7.5	-135.2	-170.1	
1430	3.0E-7	-190.3	-194.9	-40.0	4.8	-7.4	-135.1	-170.1	
1500	2.6 E-7	-189.9	-194.7	-40.0	4.8	-7.4	-135.0	-170.1	
1530	2.6E-7	-190.0	-194.4	-40.1	4.7	-7.3	-134.9	-170.1	
1600	2.5E-7	-190.2	-194.2	-40.1	4.7	-7.3	-134.8	-170.1	[illegible] START
1630	2.4E-7	-189.5	-194.0	-40.1	+4.8	-7.6			COLD & INTERMEDIATE STAGE [illegible]
1700	2.1E-7	-190.1	-193.4	-31.5	+5.8	-8.1			
1730	2.0E-7	-190.0	-192.0	-24.3	+8.4	-7.9			
1800	2.0E-7	-191.1	-191.6	-21.1	+12.2	-7.7			I / 172

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SIZE	CODE IDENT NO.	NUMBER
A	11323	16188
SCALE	REV B	SHEET 36

APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET P26

DATE TIME	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (01)	SBS LN_2 STAGE TEMP °C (02)	RC DOOR TEMP °C (03)	RC MOUNT PLTFM TEMP °C (04)	RC AMBIENT HOUSING TEMP °C (06)	RC INT STAGE TEMP °C (08)	RC COLD STAGE TEMP °C (09)	REMARKS
18:30	2.0E-7	-194.8	-190.3	-20.7	+12.5	-7.2	—	—	COLD STAGE TELEMETRY VOLTAGES CHANGING RAPIDLY
19:00	2.0E-7	-193.3	-190.0	-20.7	+12.5	-7.1	—	—	(FOUND TO BE
19:30	2.2E-7	-184.0	-186.8	-20.5	+12.7	-6.7	—	—	FAULTY METER -
20:00	2.6E-7	-193.4	-187.8	-20.3	+12.8	-6.5	—	—	CHANGED METER
20:30	2.2E-7	-193.7	-186.4	-20.1	+12.8	-6.3	—	—	AND OK. T.T.C)
21:00	3.4E-7	-194.0	-182.7	-15.1	+15.0	-6.2	—	—	
21:30	1.0E-6	-191.8	-172.1	+11.1	18.9	-4.3	—	—	
22:00	70×10^{-5}	-112.8	-131.0	18.7	21.5	-2.6	—	—	
22:30	6.1E-5	-98.8	-106.4	18.5	23.8	-1.4	—	—	
23:00	5.0E-5	-81.7	-99.2	18.3	24.2	-0.4	—	—	TERMINATE [illegible] TEST
23:30	7.6E-5	-77.7	-92.4	18.0	25.1	1.2	—	—	COLD PLT 20.1°C INT PLT 21.4°C
24:00	7E-4	-45.9	-60.9	23.5	25.0	2.9			
00:30	2.8E-5	10.1	-7.1	24.9	24.9	5.7			
01:00	1.1E-5	40.8	25.5	24.5	27.6	10.5	20.7	19.5	
01:30			SHUT	DOWN	TEST,	0115			T.T.C. 4/9/82
02:00									
02:30									Y 172
03:00									
03:15									
03:30									
04:00									
04:30									
05:00									
05:30									
06:00									

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SIZE	CODE IDENT NO.	NUMBER	REV
A	11323	16188	B

SCALE SHEET 36

COLD STAGE PRT 4-WIRE -314 Ω
*INTER STAGE -451 Ω
*ONE OF FOUR WIRES OPEN
SEE F.R. 58106

8 APR 82 APPENDIX 50. OUTGAS MODE DATA SHEET

TIME	INTERM STAGE COLD TLMY V	INTERM STAGE HOT TLMY V	COLD STAGE COLD TLMY V	COLD STAGE HOT TLMY V	CFP MON DIODE V	REMARKS TIME
t = 0	3.61	3.96	1.30	3.92	.9440	16:15
	1.23	3.52	-0.65	2.62	.9028	16:30
	.18	3.29	-0.66	1.88	.8268	16:45
	-.56	2.68	-0.65	.40	.6215	17:00
	-.54	2.38	"	.40	.5492	17:15
	-.54	2.31	"	.42	.5451	17:45 CAUSE: FAULTY METER
	-.55	1.91	"	.42	.5402	18:00
	-.55	1.81	CANNOT READ:	RAPID FLUCTUATIONS	.5330	18:15
	-.55	1.75	-0.65	.41	.5374	18:30
	-.55	1.62	CANNOT READ -	RAPID FLUCTUATIONS	.5370	18:45
	-.55	1.51	"	"	.5369	19:00
	-.55	1.37	"	"	.5367	19:15
	-.55	1.26	-.65	.41	.5366	19:30 CHANGED METER
	-.56	1.13	-.66	.42	.5364	19:45
	-.56	1.04	-.66	.42	.5363	20:00
	-.56	.92	-.66	.43	.5362	20:15
	-.58	.81	-.66	.42	.5361	20:30
	-.56	.74	-.66	.43	.5360	20:45
	-.55	.74	-.65	0.41	.5356	21:00 * CHANGED TO FLUKE 8000A ON CS HOT TLMY V. T.T.C
	-.58	.62	-.65	.43	.5353	21:15
	-.65	+.68	-.65	.41	.5350	21:30
	-.58	.70	-.65	.42	.5350	21:45
	-.65	.58	-.65	.41	.5351	22:00
	-.65	.62	-.65	.41	.5347	22:15
	-.55	.71	-.65	.41	.5336	22:30
	-.55	.73	-.65	.43	.5318	22:45
	-.55	.74	-.65	.43	.5288	23:00
	-.58	.71	-.65	.41	.5274	23:15 TEST TERMINATED

INT PRT 21.4°C
COLD PRT 20.7°C

SIZE	CODE IDENT NO	NUMBER
A	11323	16188
SCALE	REV	SHEET 51

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[illegible]	[illegible]	29.0 Ω	[illegible]
[illegible]	[illegible]	546 Ω	
[illegible]	[illegible]	∞	[illegible]
[illegible]	[illegible]	∞	
[illegible]	[illegible]	29.6 Ω	
3[illegible]	35	335 Ω	[illegible] Stage PRT
35	3[illegible]	29.6 Ω	

Item	[illegible] Controller	[illegible] Controller
CTPL Control Diode, Volts	0.94661	0.94542
CTPL Monitor Diode, Volts	0.94615	0.94472
CTPL Control Tlmy, Volts	0.908	0.824
CTPL Monitor Tlmy, Volts	1.115	1.034
CS Cold Tlmy, Volts	1.802	Not applicable
CS Pot Tlmy, Volts	4.05	Not applicable
CS PRT (Center) Resistance, Ohms	312.7 Ω (105.15)	309.39 (104.55)

3/30/82
T.T. Cafferty

(Data Collected By
M. J. Slonaker
& Chuck Lane

APPENDIX 30. TEMPERATURE NTROLLABILITY DATA SHEET

SETPOINT: T1 (90K) ✓ T2 (95K)______ BACKUP (105K)______ T3 (105K)______

TIME 4/6/82	BIAS POWER	COLD FOCAL PLANE					COLD STAGE			REMARKS
		DIODE V (CONTROL)	DIODE V (MONITOR)	TLMY V (CONTROL)	TLMY V (MONITOR)	TLMY CURRENT	TLMY HOT V	TLMY COLD V	TLMY CURRENT	
2145 0.0 Min.	OFF	0.9801	0.9792	3.66	3.81	5.09				
0.5		0.9801	0.9790	3.63	3.90	4.42				
1.0		0.9801	0.9791	3.65	3.79	5.09				
1.5		0.9802	0.9791	3.64	3.79	5.09				
2.0		0.9802	0.9790	3.64	3.78	5.09				
2.5		0.9802	0.9790	3.64	3.79	5.09				
3.0		0.9802	0.9787	3.63	3.78	4.98				
3.5		0.9802	0.9788	3.63	3.78	4.98				
4.0		0.9802	0.9788	3.63	3.77	4.96				
4.5		0.9802	0.9788	3.63	3.77	4.94				
5.0		0.9802	0.9788	3.63	3.78	4.92				
5.5		0.9802	0.9786	3.62	3.78	4.89				
6.0		0.9802	0.9786	3.63	3.78	4.85				
6.5		0.9802	0.9787	3.63	3.91	4.08				
7.0		0.9801	0.9788	3.63	3.78	4.85				
7.5		0.9802	0.9787	3.62	3.78	4.85				
8.0		02	.9787	3.62	"	"				
8.5		"	.9786	3.62	"	4.87				
9.0		"	.9787	3.62	"	4				
9.5		"	.9786	3.63	"	4.83				
10.0		"	.9786	"	"	"				
10.5		"	.9786	3.62	"	4.82				
11.0		"	.9786	3.62	"	4.82				
11.5		"	.9786	3.62	"	4.81				
12.0		"	.9786	3.62	"	4.82				
12.5		"	.9786	3.63	"	4.77				
13.0		"	.9786	3.62	"	4.73				
13.5		"	.9786	3.63	"	4.73				
14.0		"	.9787	3.63	"	4.71				
14.5		"	.9787	3.63	"	4.65				
15.0	ON	"	.9787	3.63	3.79	4.45				
15.5		"	.9787	3.63	3.78	4.45				
16.0		"	.9787	3.63	3.79	4.44				
16.5		"	.9787	3.62	3.78	4.45				
17.0		"	.9787	3.63	3.78	4.45				
17.5		"	.9787	3.63	3.78	4.44				
18.0		"	.9787	3.63	3.78	4.43				
18.5		"	.9787	3.63	3.78	4.42				
19.0	ON	"	.9787	3.63	3.78	3.77				

(TABLE CONTINUED)

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APPENDIX 30. TEMPERATURE CONTROL ILITY DATA SHEET (CONTINUED)

SETPOINT: T1 (90K) ✓ T2 (95K)_______ BACKUP (105K)_______ T3 (105K)_______

TIME	BIAS POWER	COLD FOCAL PLANE					COLD STAGE			REMARKS
		DIODE V (CONTORL)	DIODE V (MONITOR)	TLMY V (CONTROL)	TLMY V (MONITOR)	TLMY CURRENT	TLMY HOT V	TLMY COLD V	TLMY CURRENT	
19.5 Min.	ON	.9802	.9787	3.63	3.89	3.77				
20.0		.9801	.9787	3.63	3.89	3.76				
20.5		.9801	.9787	3.63	3.89	3.75				
21.0		.9801	.9787	3.63	3.89	3.73				
21.5		.9801	.9787	3.63	3.89	3.73				
22.0		.9801	.9787	3.63	3.89	3.72				
22.5		.9801	.9787	3.63	3.89	3.72				
23.0		.9801	.9787	3.63	3.89	3.70				
23.5		.9801	.9787	3.63	3.89	3.70				
24.0		.9801	.9787	3.63	3.89	3.69				
24.5		.9801	.9787	3.63	3.89	3.69				
25.0		.9801	.9787	3.63	3.89	3.69				
25.5		"	"	"	"	"				
26.0		"	"	"	"	"				
26.5		"	"	"	"	3.68				
27.0		"	"	"	"	"				
27.5		"	"	"	"	"				
28.0		"	"	"	"	"				
28.5		"	"	"	"	"				
29.0		"	"	"	"	"				
29.5		"	"	"	"	"				
30.0 Min.	ON	.9801	.9787	363	3.89	367				
2215 0.0 Hr.	ON	.9801	.9800	3.63	3.89	3.67				SUBSTITUTED ANOTHER METER FOR ONE WHICH READ
0.5		.9801	.9800	3.63	3.89	3.50				0.9787V - NOW READS .9800
1.0		.9801	.9800	3.63	3.89	3.41				(NOT CHANGING) T.T.C 4/6/82
1.5		.9801	.9800	3.63	3.90	3.14				
2.0	0000	.9801	.9801	3.63	3.90	3.00				TONY 4-7-82
2.5	15	.9801	.9801	3.63	3.90	2.94				
00:3.0	0030	.9801	.9801	3.63	3.89	2.87				
3.5	45	.9800	.9801	3.63	3.89	2.87				
4.0	0100	.9801	.9801	3.63	3.89	2.80				DATA LOGGED
4.5	15	.9801	.9801	3.63	3.89	2.83				EVERY 15 MINUTES
5.0	30	.9801	.9801	3.63	3.89	2.80				INSTEAD OF EVERY
5.5	0145	.9801	.9801	3.63	3.89	2.80				HALF HOUR
6.0	0200	.9801	.9801	3.63	3.89	2.78				T.T.C
6.5	15	.9801	.9801	3.63	3.89	2.79				
7.0	30	.9801	.9801	3.63	3.89	2.76				
7.5 Hr.	ON 45	.9801	.9801	3.63	3.89	2.77				4-6-82

PAGE #1

(TABLE CONTINUED)

APPENDIX 30. TEMPERATURE CONTROLLA''LITY DATA SHEET (CONTINUED)

SETPOINT: T1 (90K) ✓ T2 (95K)______ BACKUP (105K)______ T3 (105K)______

TIME	BIAS POWER	COLD FOCAL PLANE					COLD STAGE			REMARKS
		DIODE V (CONTROL)	DIODE V (MONITOR)	TLMY V (CONTROL)	TLMY V (MONITOR)	TLMY CURRENT	TLMY HOT V	TLMY COLD V	TLMY CURRENT	
8.0 Hr.	ON 0300	.9801	.9801	3.63	3.89	2.76				4-7-82
8.5	15	.9801	.9801	3.63	3.89	2.78				
9.0	30	.9801	.9801	3.63	3.89	2.76				
9.5	45	.9801	.9801	3.63	3.89	2.78				
10.0	0400	.9801	.9801	3.63	3.87	2.76				
10.5	15	.9801	.9801	3.63	3.89	2.77				
11.0	30	.9801	.9801	3.63	3.89	2.75				
11.5	45	.9801	.9801	3.63	3.89	2.78				
12.0	0500	.9801	.9801	3.63	3.89	2.75				
12.5	15	.9801	.9801	3.62	3.89	2.78				
13.0	30	.9801	.9801	3.62	3.88	2.76				
13.5	45	.9801	.9801	3.62	3.89	2.78				
14.0	0600	.9801	.9801	3.63	3.90	2.73				
14.5	15	.9801	.9801	3.63	3.90	2.76				
15.0	30	.9801	.9801	3.63	3.90	2.75				
15.5	45	.9801	.9801	3.63	3.89	2.75				
16.0	0700	.9801	.9801	3.63	3.89	2.74				
16.5	15	.9801	.9801	3.63	3.89	2.74				
17.0	30	.9801	.9801	3.63	3.89	2.77				
17.5	45	.9801	.9801	3.64	3.89	2.75				
18.0	0800	TEST CONCLUDED 0751			4/7/82	- STABILITY CRITERIA MET				G.C.
18.5	15									
19.0	30									
19.5	45									
20.0	0900									
20.5	15									
21.0	30									
21.5	45									
22.0	1000									
22.5	15									
23.0	30									
23.5	ON 45									4-6-82
24.0 Hr.	OFF 1100									

DATA LOGGED EVERY 15 MINUTES INSTEAD OF EVERY HALF HOUR G.C.

TOTAL TEST TIME 8 3/4 HOURS

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PAGE #2.

APPENDIX 30. TEMPERATURE (TROLLABILITY DATA SHEET

SETPOINT: T1 (90K)______ T2 (95K) 94.55 ✓ BACKUP (105K)______ T3 (105K)______

TIME 1120 4/7/82	BIAS POWER	COLD FOCAL PLANE					COLD STAGE			REMARKS
		DIODE V (CONTROL)	DIODE V (MONITOR)	TLMY V (CONTROL)	TLMY V (MONITOR)	TLMY CURRENT	TLMY HOT V	TLMY COLD V	TLMY CURRENT	
0.0 Min.	OFF	0.9679	.9676	2.62	2.87	4.90				
0.5		"	"	"	"	4.89				
1.0		"	"	2.62	"	4.86				
1.5		"	"	"	"	"				
2.0		"	"	"	"	4.85				
2.5		"	"	"	"	"				
3.0		"	"	"	"	4.84				
3.5		"	"	"	"	4.83				
4.0		"	"	"	"	4.83				
4.5		"	"	"	"	4.81				
5.0		0.9678	"	"	"	4.80				
5.5		0.9679	"	"	"	4.79				
6.0		"	"	"	"	4.77				
6.5		"	"	"	"	4.76				
7.0		"	"	2.61	"	"				
7.5		"	"	"	"	4.74				
8.0		"	"	"	"	"				
8.5		"	"	"	"	4.72				
9.0		"	"	"	"	"				
9.5		"	"	"	"	4.71				
10.0		"	"	"	"	"				
10.5		"	"	"	"	4.70				
11.0		"	"	"	"	4.70				
11.5		"	"	"	"	4.69				
12.0		0.9678	"	"	"	"				
12.5		"	"	"	"	4.68				
13.0		0.9679	"	"	"	4.69				
13.5		"	"	"	"	4.68				
14.0		"	"	"	"	"				
14.5		"	"	"	"	4.67				
15.0	ON	"	"	"	"	4.66				
15.5		"	"	"	2.86	4.53				
16.0		"	"	"	[illegible] "	4.47				
16.5		"	"	"	"	4.50				
17.0		"	"	"	"	4.49				
17.5		"	"	"	"	"				
18.0		"	"	"	"	4.48				
18.5		"	"	"	"	"	I			
19.0	ON	"	"	"	"	"	172			

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(TABLE CONTINUED)

APPENDIX 30. TEMPERATURE CONTROL [illegible]ILITY DATA SHEET (CONTINUED)

SETPOINT: T1 (90K)______ T2 (95K) ✓ 94.55 BACKUP (105K)______ T3 (105K)______

TIME	BIAS POWER	COLD FOCAL PLANE					COLD STAGE			REMARKS
		DIODE V (CONTORL)	DIODE V (MONITOR)	TLMY V (CONTROL)	TLMY V (MONITOR)	TLMY CURRENT	TLMY HOT V	TLMY COLD V	TLMY CURRENT	
19.5 Min.	ON	0.9679	0.9676	2.61	2.86	4.48				
20.0		"	"	"	"	4.47				
20.5		"	"	"	"	"				
21.0		"	"	"	"	4.46				
21.5		"	"	"	"	4.45				
22.0		"	"	"	"	"				
22.5		"	"	"	"	4.44				
23.0		"	"	"	"	"				
23.5		"	"	"	"	4.43				
24.0		"	"	"	"	"				
24.5		"	"	"	"	"				
25.0		"	"	"	"	4.42				
25.5		"	"	"	"	4.41				
26.0		"	"	"	"	"				
26.5		"	"	"	"	4.40				
27.0		"	"	"	"	4.39				
27.5		"	"	"	"	"				
28.0		"	"	"	"	4.38				
28.5		"	"	"	"	"				
29.0		"	"	"	"	4.37				
29.5		"	"	"	"	"				
30.0 Min.	ON	"	"	"	"	4.36				
0.0 Hr.	ON	"	"	2.60	"	4.26				
1215 0.5		"	"	"	"	4.20				
1245 1.0		"	"	"	"	3.86				
1315 1.5		"	"	"	"	3.77				
1345 2.0		"	"	"	"	3.68				
1415 2.5		"	"	"	"	3.62				
1445 3.0		"	"	"	"	3.58				
1515 3.5		"	"	"	"	3.70				TEMP. CONT OFF FOR NOISE MEAS
1545 4.0		"	"	"	"	3.57				BAND 5, 7
1615 4.5		"	"	"	"	3.51				
1645 5.0		"	"	"	2.87	3.50				
1715 5.5		— END OF CONTROLLABILITY TEST AT 95°K —								
1745 6.0										
1815 6.5										
1845 7.0										
1915 7.5 Hr.	ON									

(TABLE CONT'NUED)

APPENDIX 30. TEMPERATURE CONTROL ILITY DATA SHEET (CONTINUED)

SETPOINT: T1 (90K)______ T2 (95K)______ BACKUP (105K) [illegible] √ T.T.C T3 (105K) [illegible]

TIME	BIAS POWER	COLD FOCAL PLANE					COLD STAGE			REMARKS
		DIODE V (CONTORL)	DIODE V (MONITOR)	TLMY V (CONTROL)	TLMY V (MONITOR)	TLMY CURRENT	TLMY HOT V	TLMY COLD V	TLMY CURRENT	
19.5 Min.	ON									
20.0										
20.5										
21.0										
21.5										
22.0										
22.5										
23.0										
23.5										
24.0										
24.5										
25.0										
25.5										
26.0										
26.5										
27.0										
27.5										
28.0										
28.5										
29.0										
29.5										
30.0 Min.	ON									
4-7-82 2030 0.0 Hr.	ON	.94639	.9461				4.05	1.84	0.0	.9464V - .0015 ⇒
2100 0.5		.94638	"				4.06	1.85	-.004	104.4K
2130 1.0		.94639	.9460				4.06	1.85	-.004	
2200 1.5		.94643	.9461				4.05	1.84	-.004	
2230 2.0		.9465	.9462				4.05	1.81	"	
2300 2.5		.9464	.9460				4.06	1.86	"	
2330 3.0		.9465	.9461				4.05	1.83	"	
3.5	0000	.9464	.9460				4.05	1.84	"	T-[illegible] 4-8-82
4.0	0030	.9461	.9464				4.06	1.88	"	
4.5	0100	.9463	.9466				4.06	1.87	"	
5.0	0130	.9462	.9466				4.05	1.83	"	
5.5	0200	.9461	.9464				4.05	1.82	"	[illegible] 4-8-82
6.0	0230	.9461	.9464				4.06	1.86	"	
6.5	0300	.9461	.9464				4.06	1.88	"	
7.0	0330	.9463	.9466				4.05	1.80	"	
7.5 Hr.	ON 0400	.9463	.9466				4.04	1.80	"	

(TABLE CONTINUED)

APPENDIX 30. TEMPERATURE CONTROLLABILITY DATA SHEET (CONTINUED)

SETPOINT: T1 (90K)______ T2 (95K)______ BACKUP (105K) ✓ T3 (105K)______

TIME	BIAS POWER	COLD FOCAL PLANE					COLD STAGE			REMARKS
		DIODE V (CONTROL)	DIODE V (MONITOR)	TLMY V (CONTROL)	TLMY V (MONITOR)	TLMY CURRENT	TLMY HOT V	TLMY COLD V	TLMY CURRENT	
8.0 Hr.	ON 0430	.9461	.9464				4.05	1.84	-.004	4-8-82 T..
8.5	0500	.9462	.9465				4.06	1.88	"	
9.0	0530	.9463	.9466				4.04	1.79	"	
9.5	0600	.9462	.9465				4.05	1.81	"	
10.0	0630	.9461	.9464				4.05	1.84	"	
10.5	0700	.9461	.9464				4.06	1.87	"	
11.0	0730	.9463	.9466				4.05	1.82	"	
11.5	0800	TERMINATE 105K BACKUP CONTROLLER TEST							0747	4/8/82 T.T.C.
12.0	0830									
12.5										
13.0										
13.5										
14.0										
14.5										
15.0										
15.5										
16.0										
16.5										
17.0										
17.5										
18.0										
18.5										
19.0										
19.5										
20.0										
20.5										
21.0										
21.5										
22.0										
22.5										
23.0										
23.5	ON									
24.0 Hr.	OFF									

APPENDIX 30. TEMPERATUR' NTROLLABILITY DATA SHEET

SETPOINT: T1 (90K)_______ T2 (95K)_______ BACKUP (105K)_______ T3 (105K) ✓

TIME 0845 04/08/82	BIAS POWER	COLD FOCAL PLANE					COLD STAGE			REMARKS
		DIODE V (CONTROL)	DIODE V (MONITOR)	TLMY V (CONTROL)	TLMY V (MONITOR)	TLMY CURRENT	TLMY HOT V	TLMY COLD V	TLMY CURRENT	
0.0 Min.	OFF	0.9445	0.9445	0.65	0.94	3.50				
0.5		"	"	"	"	3.44				
1.0		"	"	"	0.95	3.50				
1.5		"	"	"	"	3.45				
2.0		"	"	"	"	3.47				
2.5		"	"	"	0.96	3.50				
3.0		"	"	"	0.94	3.49				
3.5		"	"	"	0.91	3.92				
4.0		"	0.9443	"	0.92	3.85				
4.5		"	0.9442	"	"	3.75				
5.0		"	"	"	"	3.80				
5.5		"	"	"	"	3.72				
6.0		"	"	"	"	3.76				
6.5		"	"	"	"	3.78				
7.0		"	"	"	"	3.82				
7.5		"	"	"	"	3.74				
8.0		"	"	"	"	3.75				
8.5		"	"	"	"	3.77				
9.0		"	"	"	"	3.77				
9.5		"	"	"	"	3.78				
10.0		"	"	"	"	3.79				
10.5		"	"	"	"	3.80				
11.0		"	"	"	"	3.82				
11.5		"	"	"	"	3.81				
12.0		"	"	"	"	3.82				
12.5		"	"	"	"	3.83				
13.0		"	"	"	"	3.84				
13.5		"	"	"	"	3.85				
14.0		"	"	"	"	3.86				
14.5		"	"	"	"	3.86				
15.0	ON	"	"	"	"	3.87				
15.5		"	"	"	"	3.65				
16.0		"	"	"	"	3.66				
16.5		"	"	"	"	3.67				
17.0		"	"	"	"	3.68				
17.5		"	"	"	"	3.68				
18.0		"	"	"	"	3.68				
18.5		"	"	"	"	3.68				
19.0	ON	"	"	"	"	3.70				

(TABLE CONTINUED)

APPENDIX 30. TEMPERATURE CONTROL ILITY DATA SHEET (CONTINUED)

SETPOINT: T1 (90K)______ T2 (95K)______ BACKUP (105K)______ T3 (105K) ✓

TIME	BIAS POWER	COLD FOCAL PLANE					COLD STAGE			REMARKS
		DIODE V (CONTORL)	DIODE V (MONITOR)	TLMY V (CONTROL)	TLMY V (MONITOR)	TLMY CURRENT	TLMY HOT V	TLMY COLD V	TLMY CURRENT	
19.5 Min.	ON	0.9445	0.9442	0.65	0.92	3.73				
20.0	↑	"	"	"	"	3.72				
20.5		"	"	"	"	3.72				
21.0		"	"	"	"	3.72				
21.5		"	"	"	"	3.74				
22.0		"	"	"	"	3.75				
22.5		"	"	"	"	3.75				
23.0		"	"	"	"	3.76				
23.5		"	"	"	"	3.75				
24.0		"	"	"	"	3.75				
24.5		"	"	"	"	3.77				
25.0		"	"	"	"	3.78				
25.5		"	"	"	"	3.78				
26.0		"	"	"	"	3.78				
26.5		"	"	"	"	3.79				
27.0		"	"	"	"	3.79				
27.5		"	"	"	"	3.81				
28.0		"	"	"	"	3.81				
28.5		"	"	"	"	3.82				
29.0		"	"	"	"	3.83				
29.5	↓	"	"	"	"	3.83				
30.0 Min.	ON	"	"	"	"	3.83				
0915 0.0 Hr.	ON	0.9445	0.9442	0.65	0.92	3.85				
0945 0.5	↑	0.9445	0.9443	"	0.93	3.98				
1015 1.0		0.4444	0.9443	"	"	3.98				0.9436 READING
1045 1.5		0.9445	0.9436	"	.90	~~4.38~~	3.93			BAND 6 POWER SWITCHED
1115 2.0		0.9444	0.9449	"	1.01	3.54				ON/OFF T.T.C
1145 2.5		0.9445	0.9446	"	.98	3.61				(SHORT TERM RESPONSE)
1215 3.0		0.9445	0.9448	0.66	0.98	3.94				
1245 3.5		0.9445	0.9449	0.66	0.98	3.87				
1315 4.0		0.9444	0.9446	0.65	0.98	3.76				
1345 4.5		0.9445	0.9445	0.65	0.96	3.75				
1415 5.0		0.9444	0.9444	0.65	0.97	3.71				
1445 5.5		0.9445	0.9450	0.66	0.95	3.82				
1515 6.0		0.9444	0.9445	0.66	0.96	3.65				
1545 6.5		0.9444	0.9444	0.66	0.96	3.66				
1615 7.0	↓	TERMINATE		105K PRIMARY		CONTROL	TEST	1603	4/8/82	T.T.C.
1645 7.5 Hr.	ON									

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(TABLE CONTINUED)

ORIGINAL PAGE IS
OF POOR QUALITY

Radiative Cooler

Performance Data

Part 2

Thermal Vacuum Test

Supplemental Data

PRE-BAKEOUT CHECK (SBS)

APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET

Pin No. J1	to Pin No. J1	Resistance, Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By Oper.	Insp.	Date	Remarks
1	2	<2	0.1	SBS LN_2	T.T.C		3/24/82	
1	3	1,100	1088					
3	4	<2	0.1					
5	6	<2	0.3	SBS LN_e				
5	7	1,100	1088					
7	8	<2	0.2					
9	10	<2	0.3	R. C. DOOR				
9	11	1,100	1087					
11	12	<2	0.2					
13	14	<2	0.2	MTG PLATFORM				
13	15	1,100	1087					
15	16	<2	0.2					
17	18	<2	0.3	RESP. B. B.				
17	19	1,100	1089					
19	20	<2	0.2		T.T.C		3/24/82	

ORIGINAL PAGE IS OF POOR QUALITY

PRE-BAKE (SBS) 3/24/82

SCALE | SIZE A | CODE IDENT NO. 11323 | REV B | NUMBER 16188 | SHEET 28

FORM NO. 0122-1-A (5-69) DIETERICH-POST CLEARPRINT 1000H

PRE-BAKE OUT CHECK (SBS)

APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET (Continued)

Pin No. J1	to Pin No. J1	Resistance, Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By Oper.	Insp.	Date	Remarks
21	22	<2	0.2	PREAMP RADIATOR	F.L.C	172	3/24/82	
21	23	1,100	1086					
23	24	<2	0.2					
25	26	<2	0.2	RESP. B. B. SHUTTER				
25	27	1,100	1090					
27	28	<2	0.2					
33	34	<2	—	COOLER AMBIENT HOUSING				COOLER NOT INSTL.
33	35	1,100	—					
35	36	<2	—					
37	GND	OPEN	OPEN	SPARE	F.L.C	[illegible]	3/24/82	
ALL	GND	OPEN	OPEN				3/24/82	

ORIGINAL PAGE IS OF POOR QUALITY

SIZE A | CODE IDENT NO. 11323 | NUMBER 16188 | SCALE | REV B | SHEET 29

C-2

APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET (Continued)

Pin No. J3	to Pin No. J3	Resistance Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By Oper.	Insp.	Date	Remarks
1	2	110	109.0	CONTROL SENSOR-MTG PLT	F.T.C	I 172	3/24/82	
2	3	<2	0.3					
4	5	110	109.3	CONTROL SENSOR-SBS				
5	6	<2	0.4					
7	8	110	108.6	CONTROL SENSOR-DOOR				
8	9	<2	0.3					
10	11	110	108.7	R. C. DOOR SPARE				
11	12	<2	0.2					
19	20	1,400	1.302K	DRIVE RESP B. B.				
21	22	260	257	FP RESP B. B.				
23	24	28.4	28.1	SHUTTER RESP B. B.				
25	26	17.8	17.0	HEATER RESP B. B.				
27	28	480	488	MTG PLAT HTR	F.T.C	I 172	3/24/82	

PRE-SBS BAKEOUT CHECK

ORIGINAL PAGE IS OF POOR QUALITY

SIZE A | CODE IDENT NO. 11323 | NUMBER 16188 | REV B | SCALE | SHEET 32

FORM NO. 0133 1-A 15-491 DIETRICH-POST CLEARPRINT 1000H

APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET (Continued)

Pin No. J3	to Pin No. J3	Resistance, Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By			Remarks
					Oper.	Insp.	Date	
29	32	24	24.1		T.C.C	I 172	3/24/82	
30	31	24	24.0	HTR LN_e STG				
33	34	24	23.9	HTR LN_2 STG				
35	36	180	161.7	HTR R. C. DOOR				
37	GND	OPEN	OPEN	SPARE	T.T.C		3/24/82	
ALL	GND	OPEN	OPEN		T.T.C	I 172	"	

3/31/82

PRE-SBS BAKEOUT CHECK

ORIGINAL PAGE IS OF POOR QUALITY

SIZE	CODE IDENT NO.	NUMBER
A	11323	16188
SCALE	REV B	SHEET 33

APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET

Pin No. J1	to Pin No. J1	Resistance, Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By Oper.	Performed By Insp.	Performed By Date	Remarks
1	2	<2	.5	SBS LN_2	CBloom		03/27/82	
1	3	1,100	1.1K					
3	4	<2	.25					
5	6	<2	.5	SBS LN_e				
5	7	1,100	1.1k					
7	8	<2	.3					
9	10	<2	.3	R. C. DOOR				
9	11	1,100	1.1K					
11	12	<2	.3					
13	14	<2	.2	MTG PLATFORM				
13	15	1,100	1.1k					
15	16	<2	.2					
17	18	<2	.35	RESP. B. B.				
17	19	1,100	1.1k					
19	20	<2	.4		CBloom		03/27/82	

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OF POOR QUALITY

SIZE A | CODE IDENT NO. 11323 | NUMBER 16188
SCALE | REV B | SHEET 28

APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET (Continued)

Pin No. J1	to Pin No. J1	Resistance, Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By Oper.	Insp.	Date	Remarks
21	22	<2	.35	PREAMP RADIATOR	[illegible]	I 172	03/27/82	
21	23	1,100	1.1K					
23	24	<2	.4					
25	26	<2	.35	RESP. B. B. SHUTTER				
25	27	1,100	1.1K					
27	28	<2	.3					
33	34	<2	~~.3~~ .2	COOLER AMBIENT HOUSING				
33	35	1,100	1.1K					
35	36	<2	.2					
37	GND	OPEN	OPEN	SPARE				
ALL	GND	OPEN	OPEN		[illegible]	I 172	03/27/82	

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SIZE	CODE IDENT NO	NUMBER
A	11323	16188

SCALE	REV	SHEET
	3	29

APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET (Continued)

Pin No. J2	to Pin No. J2	Resistance, Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By Oper.	Insp.	Date	Remarks
2	1	0.5 V 1/	.45 V	FPA TEMP-T1	[illegible]	I 172	02/27/82	MULTIMETER BIAS READING
3	4	0.5 V 1/	.45 V	FPA TEMP-T2				MULTIMETER BIAS READING
5	6	3,500	3.423K	FPA HTR				
7	8	190	188 Ω	INTR STG HTR				
9	10	280	277	COLD STG HTR				
11	12	190	189	INTR STG HTR				(REDUNDANT)
13	14	280	277	COLD STG HTR				(REDUNDANT)
25	26	80	53	TEMP COMPENSATION				
27	28	OPEN	OPEN	SPARE	[illegible]	I 172	02/27/82	

1/ Voltage reading required using Bias Multimeter

3/4/82

ORIGINAL PAGE IS OF POOR QUALITY

SIZE A | CODE IDENT NO 11323 | NUMBER 16188 | REV B | SHEET 30

APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET (Continued)

Pin No. J2	to Pin No. J2	Resistance, Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By Oper.	Insp.	Date	Remarks
29	30	30	28		[illegible]		03/27/82	
29	31	1,150	OPEN	R. C. INTR. STG.	DK	[illegible]	3/15/84	Ref FR # 58106
31	32	30	OPEN		DK	[illegible]	3/15/84	Ref FR # 58106
33	34	80	52		[illegible]		03/27/82	
33	35	1,180	1.15K	R. C. COLD STG				
35	36	80	52					
37	GND	OPEN	OPEN	SHIELD				
ALL	GND	OPEN	OPEN		[illegible]		03/27/82	

ORIGINAL PAGE IS OF POOR QUALITY

SIZE A CODE IDENT NO 11323 NUMBER 16188

SCALE REV B SHEET 31

APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET (Continued)

Pin No. J3	to Pin No. J3	Resistance Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By Oper.	Insp.	Date	Remarks
1	2	110	110	CONTROL SENSOR-MTG PLT	[illegible]		03/27/82	
2	3	<2	.3					
4	5	110	111	CONTROL SENSOR-SBS				
5	6	<2	.4					
7	8	110	110	CONTROL SENSOR-DOOR				
8	9	<2	.3					
10	11	110	110	R. C. DOOR SPARE				
11	12	<2	.4					
19	20	1,400	1.3K	DRIVE RESP B. B.				
21	22	260	260	FP RESP B. B.				
23	24	28.4	28.5	SHUTTER RESP B. B.				
25	26	17.8	17.3	HEATER RESP B. B.				
27	28	480	491	MTG PLAT HTR	[illegible]		03/27/82	

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SIZE A | CODE IDENT NO 11323 | NUMBER 16188 | REV B | SHEET 32

APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET (Continued)

Pin No. J3	to Pin No. J3	Resistance, Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By Oper.	Performed By Insp.	Performed By Date	Remarks
29	32	24	24		CDLove	I 172	03/27/84	
30	31	24	24	HTR LN_e STG				
33	34	24	24	HTR LN_2 STG				
35	36	180	161	HTR R. C. DOOR				
37	GND	OPEN	OPEN	SPARE				
ALL	GND	OPEN	OPEN		CDLove	I 172	03/27/84	

3/27/84

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SIZE A | CODE IDENT NO 11323 | NUMBER 16188

SCALE | REV B | SHEET 33

APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET (Continued)

Pin No. J6	to Pin No. J6	Resistance, Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By Oper.	Performed By Insp.	Performed By Date	Remarks
3	5	<2	.3	BAND 5 RTN, 19 RET	CBfome	I 172	03/21/82	
8	10	<2	.3	BAND 7 RTN, 19 RET				
13	18	<2	.3	BAND 6 RTN, CHAN 1-4 SHIELDS				
	22	<2	.3					
	26	<2	.3					
	30	<2	.3		CBfome	I 172	03/21/82	

3/22/82

SIZE A | CODE IDENT NO 11323 | NUMBER 16188

SCALE | REV B | SHEET 34

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APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET (Continued)

CFPA/PREAMP CONNECTOR (J6)

Conductor (J6 Pin No.)	Nominal Current 1/	Measured Current	Conductor Description	Performed By			Remarks
				Oper.	Insp.	Date	
1	2.7 mA	1.9 mA	Band 5 +19 V	CAL		03/27/82	
2	140 mA	75 mA	Band 5 +15 V				
4	140 mA	85 mA	Band 5 -15 V				
6	2.7 mA	1.9 mA	Band 7 +19 V				
7	140 mA	73 mA	Band 7 +15 V				
9	140 mA	83 mA	Band 7 -15 V				
12	75 mA after stabilization	* 180 mA	Band 6 +15 V		RD 3/27		
14	75 mA after stabilization	* 170 mA	Band 6 -15 V	CAL	B 3/27	03/27/82	

1/ Current in conductors with full power to CFPA/preamps. Deviations from nominal values shown are allowable per the discretion of the CFPA REA.

Band 6 output characteristics shall be verified according to procedures delineated by the CFPA REA prior to pumpdown/cooldown, acceptable room temperature output of Band 6 channels to be indicated by CFPA REA signature below.

CFPA REA ____________________

* NOT ABLE TO BALANCE AT ROOM TEMP (+25°C)

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SCALE | SIZE A | CODE IDENT NO 11323 | REV B | NUMBER 16188 | SHEET 35

POST BAND 6 BALANCING CHECK

04-02-82

APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET

Pin No. J1	to Pin No. J1	Resistance, Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By Oper.	Performed By Insp.	Performed By Date	Remarks
1	2	<2	.71Ω		[illegible]	[illegible]	04/02/82	
1	3	1,100	1.091K	SBS LN_2				
3	4	<2	.45					
5	6	<2	.74					
5	7	1,100	1.090K	SBS LN_e				
7	8	<2	.47					
9	10	<2	.43					
9	11	1,100	1.090K	R. C. DOOR				
11	12	<2	.44					
13	14	<2	.40					
13	15	1,100	1.092K	MTG PLATFORM				
15	16	<2	.50					
17	18	<2	.45					
17	19	1,100	1.096K	RESP. B. B.				
19	20	<2	.52		[illegible]	[illegible]	04/02/82	

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SIZE A | CODE IDENT NO. 11323 | NUMBER 16188 | REV B | SCALE | SHEET 28

APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET (Continued)

Pin No. J1	to Pin No. J1	Resistance, Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By Oper.	Insp.	Date	Remarks
21	22	<2	.50	PREAMP RADIATOR	CRL	I 172	04/02/82	
21	23	1,100	1.092K					
23	24	<2	.50					
25	26	<2	.46	RESP. B. B. SHUTTER				
25	27	1,100	1.096K					
27	28	<2	.42					
33	34	<2	.35	COOLER AMBIENT HOUSING				
33	35	1,100	1.094K					
35	36	<2	.33					
37	GND	OPEN	OPEN	SPARE				
ALL	GND	OPEN	OPEN		CRL		04/02/82	

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SIZE A CODE IDENT NO. 11323 NUMBER 16188 REV B SCALE SHEET 29

FORM NO. 0122-1-A (3-69) DIETRICH-POST CLEARPRINT 1000H

APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET (Continued)

Pin No. J2	to Pin No. J2	Resistance, Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By Oper.	Performed By Insp.	Performed By Date	Remarks
2	1	0.5 V 1/	.457 V	FPA TEMP-T1	CRL	172	04/02/82	MULTIMETER BIAS READING
3	4	0.5 V 1/	.457 V	FPA TEMP-T2				MULTIMETER BIAS READING
5	6	3,500	3.4K	FPA HTR				
7	8	190	~~1~~187.9	INTR STG HTR				
9	10	280	276	COLD STG HTR				
11	12	190	189	INTR STG HTR				(REDUNDANT)
13	14	280	276	COLD STG HTR				(REDUNDANT)
25	26	80	52.7	TEMP COMPENSATION				
27	28	OPEN	OPEN	SPARE	CRL		04/02/82	

1/ Voltage reading required using Bias Multimeter

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SCALE	SIZE	CODE IDENT NO	NUMBER	REV	SHEET
	A	11323	16198	B	30

APPENDIX 1C. ELECTRICAL CHECKOUT DATA SHEET (Continued)

Pin No. J2	to Pin No. J2	Resistance, Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By Oper.	Insp.	Date	Remarks
29	30	30	27.6		CRL		04/02/82	
29	31	1,150	OPEN	R. C. INTR. STG.		1172		REF FR 58106
31	32	30	OPEN			1172		REF FR 58106
33	34	80	51.7					
33	35	1,180	1.142	R. C. COLD STG				
35	36	80	52.1					
37	GND	OPEN	OPEN	SHIELD				
ALL	GND	OPEN	OPEN		CRL		04/02/82	

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SCALE | SIZE A | CODE IDENT NO 11323 | NUMBER 16108 | REV B | SHEET 31

APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET (Continued)

Pin No. J3	to Pin No. J3	Resistance Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By Oper.	Insp.	Date	Remarks
1	2	110	109.2	CONTROL SENSOR-MTG PLT	CRL		04/02/80	
2	3	<2	.43					
4	5	110	109.4	CONTROL SENSOR-SBS				
5	6	<2	.46					
7	8	110	108.7	CONTROL SENSOR-DOOR				
8	9	<2	.41					
10	11	110	109.0	R. C. DOOR SPARE				
11	12	<2	.38					
19	20	1,400	1.300 K	DRIVE RESP B. B.				
21	22	260	257	FP RESP B. B.				
23	24	28.4	28.3	SHUTTER RESP B. B.				
25	26	17.8	17.4	HEATER RESP B. B.				
27	28	480	488	MTG PLAT HTR	CRL		04/02/80	

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SCALE | SIZE A | CODE IDENT NO. 11323 | REV B | NUMBER 16188 | SHEET 32

APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET (Continued)

Pin No. J3	to Pin No. J3	Resistance, Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By Oper.	Insp.	Date	Remarks
29	32	24	24.0		CRL	172	9/12/82	
30	31	24	23.8	HTR LN_e STG				
33	34	24	23.7	HTR LN_2 STG				
35	36	180	162.8	HTR R. C. DOOR				
37	GND	OPEN	OPEN	SPARE				
ALL	GND	OPEN	OPEN		CRL		9/15/82	

SIZE A | CODE IDENT NO 11323 | NUMBER 16188 | REV B | SHEET 33

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APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET (Continued)

Pin No. J6	to Pin No. J6	Resistance, Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By Oper.	Performed By Insp.	Performed By Date	Remarks
3	5	<2	.40	BAND 5 RTN, 19 RET	CRL	[illegible]	04/02/84	
8	10	<2	.40	BAND 7 RTN, 19 RET				
13	18	<2	.51	BAND 6 RTN, CHAN 1-4 SHIELDS				
	22	<2	.58					
	26	<2	.40					
	30	<2	.46		CRL	[illegible]	04/02/84	

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SIZE	CODE IDENT NO	NUMBER
A	11323	16188

SCALE	REV	SHEET
	B	34

APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET (Continued)

CFPA/PREAMP CONNECTOR (J6)

Conductor (J6 Pin No.)	Nominal Current 1/	Measured Current	Conductor Description	Performed By			Remarks
				Oper.	Insp.	Date	
1	2.7 mA	2.5 mA	Band 5 +19 V	CRL		04/02/82	
2	140 mA	cal ~~150~~ 100 mA	Band 5 +15 V				
4	140 mA	cal ~~50~~ ~~100~~ 85 mA	Band 5 -15 V				
6	2.7 mA	2.5 mA	Band 7 +19 V				
7	140 mA	cal ~~150~~ 100 mA	Band 7 +15 V				
9	140 mA	cal ~~50~~ 85 mA	Band 7 -15 V				
12	75 mA after stabilization	120 mA	Band 6 +15 V				
14	75 mA after stabilization	90 mA	Band 6 -15 V	CRL		04/02/82	

1/ Current in conductors with full power to CFPA/preamps. Deviations from nominal values shown are allowable per the discretion of the CFPA REA.

Band 6 output characteristics shall be verified according to procedures delineated by the CFPA REA prior to pumpdown/cooldown, acceptable room temperature output of Band 6 channels to be indicated by CFPA REA signature below.

CFPA REA T. L. Colly 4/2/82

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SIZE	CODE IDENT NO.	NUMBER
A	11323	16188
SCALE	REV B	SHEET 35

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Radiative Cooler

Performance Data

Part 2

Thermal Vacuum Test

Bands 5 & 7 Data Sheets

Per Spec 16192

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TEST SHEET 12
SHEET 1 OF 3

SIGNAL/NOISE

CFPA SERNO 201 BAND 5 PREAMP SERNO 201 DATE: 4-12-8

BAND 5 POST AMP SERNO 201

T1 READING ______ VOLTS= ______ °K

TEST ENGINEER

T2 READING .969 VOLTS= 84 °K

NCD III

BAND 5 x480 1mV/div 100mV/div 20mV/div

Offset mV	CHANNEL	PREAMP OUTPUT			POST AMP OUTPUT			CALCULATIONS	
		1mV/div		BROAD BAND NOISE	@ ≈ 1KHz		BROAD BAND NOISE	MAX $\leq 5.8 \times 10^{-12}$ NEP λ	MIN $\geq .8$ A/W Rλ
		SIGNAL	NOISE		SIGNAL	NOISE			
-6	1		.22 →		904mV		.58		
-2	2		.22 →		819		.61		
-1	3		.27 →		792		.66		
-110	4		1.2		610		2.4		
-3	5		.22		812		.59		
4	6		.23		803		.69		
+2	7		.21		814		.64		
-4	8		.24		796		.67		
+2	9		.23		823		.61		
+140	10		.72		234		2.0		
0	11		.22		835		.64		
-360	12		2.7		507		3.6		
-2	13		.22		847		.68		
-2	14		.22		787		.65		
-1	15		.24		846		.61		
-1	16		.21 →		825		.64		

POST AMP GAIN=
APERTURE TO FILTER=
DETECTOR AREA=
H_0^{∞} =
BLACKBODY TO λ=
BLACKBODY TEMPERATURE=
DESIGN ENGINEER [signature] III

FEEDBACK RESISTOR=
NOISE CORRECTION FACTOR
BANDWIDTH=
APERTURE DIAMETER=
SCOPE GAIN=
Q.A. ENGINEER [signature] 172

18 auth 4-12-82

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV	SHEET

TEST SHEET 12
SHEET 3 OF 3

ORIGINAL PAGE IS
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SIGNAL/NOISE

CFPA SERNO 201 BAND 7 PREAMP SERNO 201 DATE: 4-12-82

BAND 7 POST AMP SERNO 201

T1 READING ______ VOLTS= ______ °K

TEST ENGINEER

T2 READING 0.969 VOLTS= 94 °K

NCD III

BAND 7

x480
1mV/div 500mV/div 20mV/div

Offset mV	CHANNEL	PREAMP OUTPUT SIGNAL	PREAMP OUTPUT NOISE	PREAMP OUTPUT BROAD BAND NOISE	POST AMP OUTPUT @ ≈ 1KHz SIGNAL	POST AMP OUTPUT @ ≈ 1KHz NOISE	POST AMP OUTPUT BROAD BAND NOISE	CALCULATIONS MAX $\leq 4.8\times10^{-12}$W NEP λ	CALCULATIONS MIN ≥ 1.0 A/W Rλ
-26	1			.60	163mV		1.3		
-2	2			.28	170		.79		
-4	3			.26	162		.63		
+2	4			.22	179		.68		
-1	5			.22	177		.63		
-2	6			.20	178		.76		
1	7			.23	176		.66		
-1	8			.20	162		.69		
-6	9			.25	184		.81		
+1	10			.22	191		.77		
0	11			.22	177		.69		
-1	12			.24	165		.73		
0	13			.26	168		.58		
+1	14			.24	164		.70		
-2	15			.22	176		.61		
-1	16			.26	171		.77		

POST AMP GAIN =
APERTURE TO FILTER =
DETECTOR AREA =
H_0^{∞} =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =

FEEDBACK RESISTOR =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER =
SCOPE GAIN =

QA ENGINEER

DESIGN ENGINEER

4-12-82

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV	SHEET

FORM NO. ... DIETERICH-POST CLEARPRINT ...

4

BAND 5/7 THERMAL VACUUM TEST DATA

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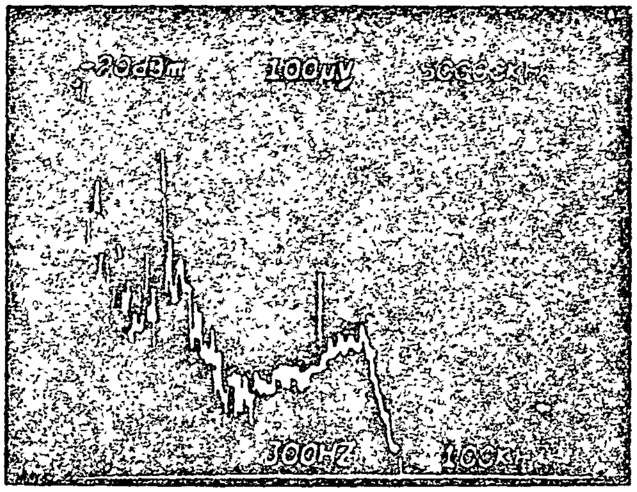
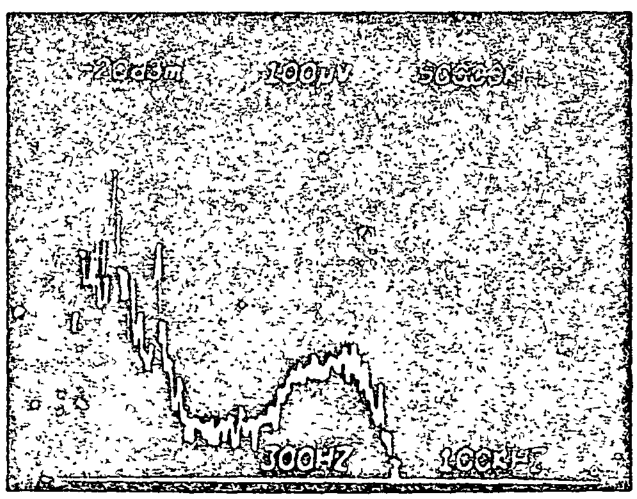


BAND 7
CH. 1

NOTE ______

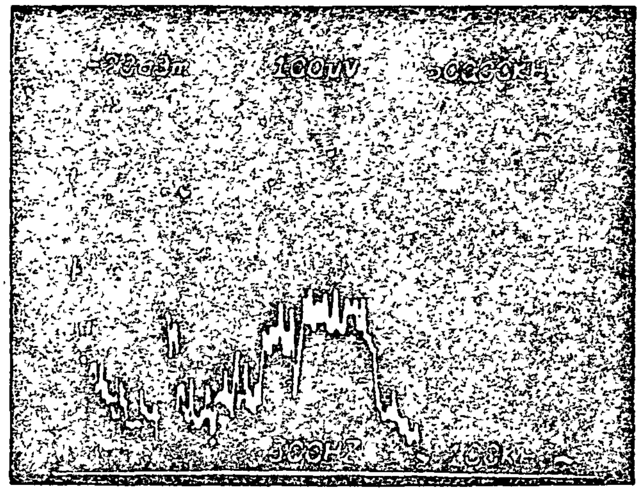


BAND 7
CH. 2

NOTE ______

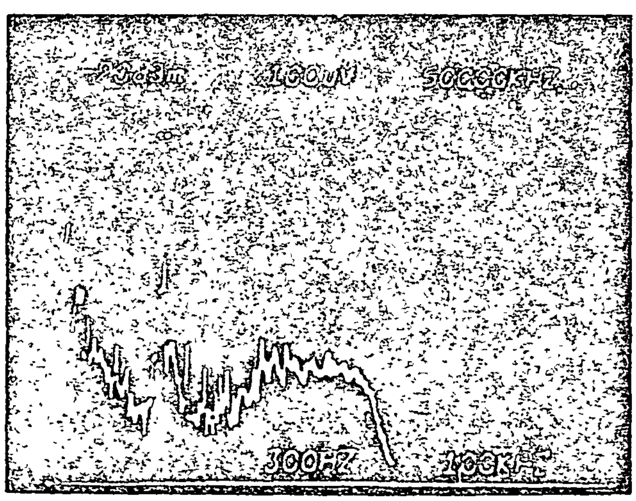
APRIL 8, 1982 (I/172)
N.C. DAVISON

BAND 5/7 THERMAL VACUUM TEST DATA



BAND 7
CH. 3

NOTE



BAND 7
CH. 4

NOTE

APRIL 8, 1982
N.C. DAVISON

(I-172)

BAND 5/7 THERMAL VACUUM TEST DATA

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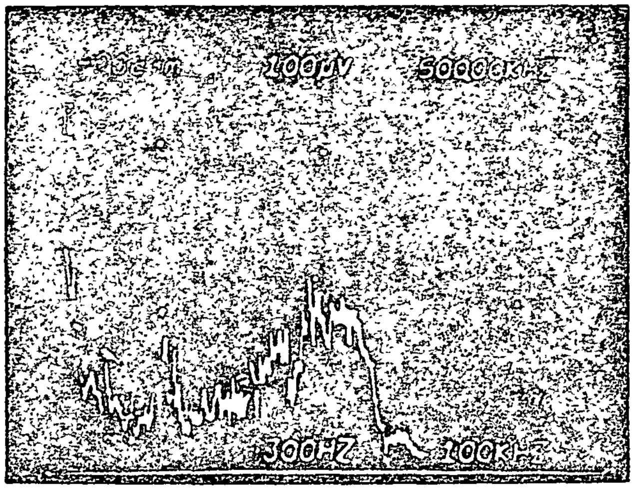

BAND 7
CH. 5

NOTE ______

BAND ______
CH. ______

NOTE ______

APRIL 8, 1982
N.C. DAVISON

BAND 5/7 THERMAL VACUUM TEST DATA

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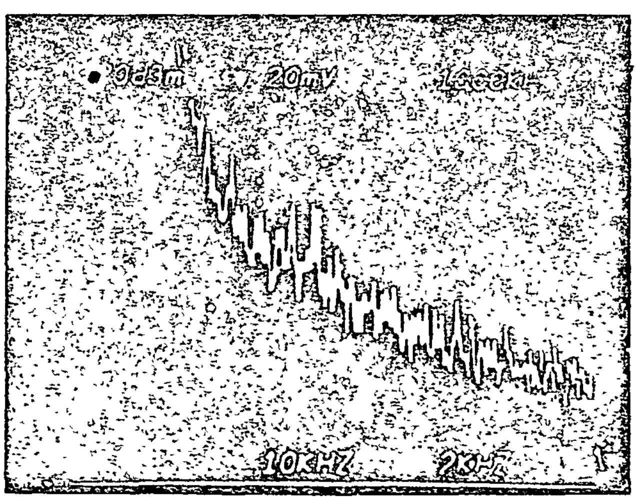
BAND 7
CH. 1
NOTE



BAND 7
CH. 1
NOTE

APRIL 8, 1982 (I/172)
N.C. DAVISON

BAND 5/7 THERMAL VACUUM TEST DATA

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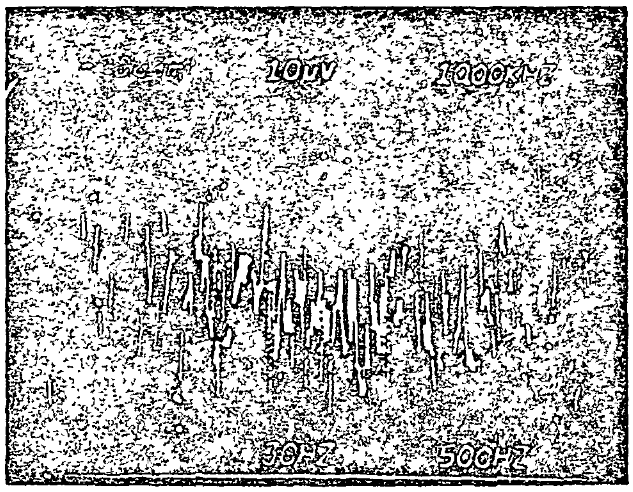


BAND ____
CH. ____

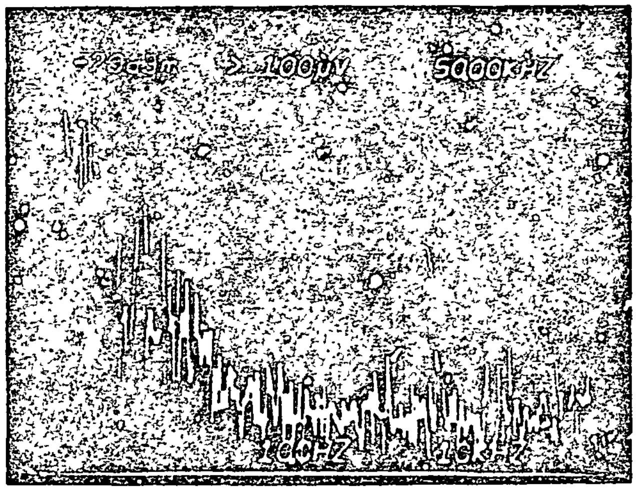
NOTE ____

BAND ____
CH. ____

NOTE ____

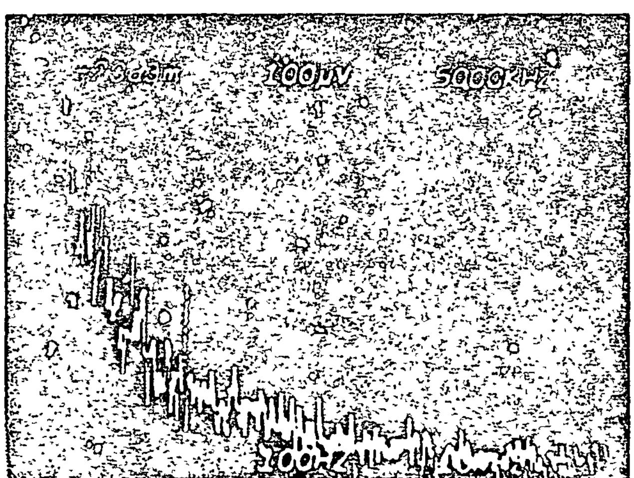
APRIL 8, 1982
N.C. DAVISON

BAND 5/7 THERMAL VACUUM TEST DATA



BAND 7
CH. 2

NOTE



BAND 7
CH. 3

NOTE

APRIL 8, 1982 (I)
N.C. DAVISON

BAND 5/7 THERMAL VACUUM TEST DATA

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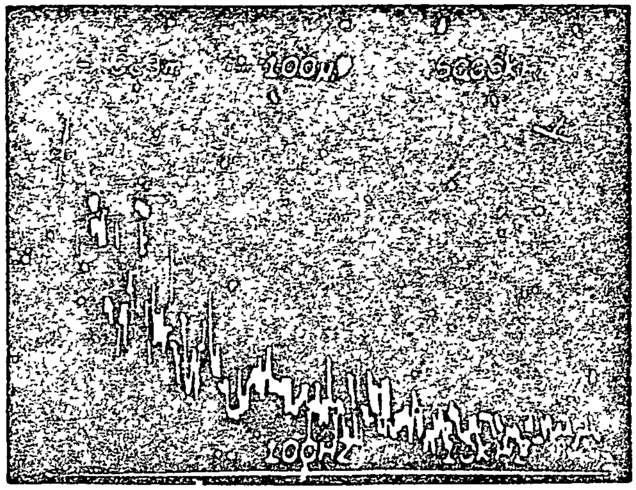
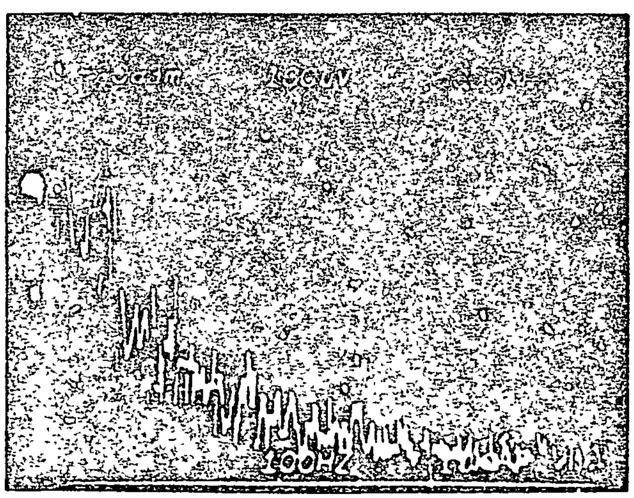


BAND 7
CH. 4

NOTE

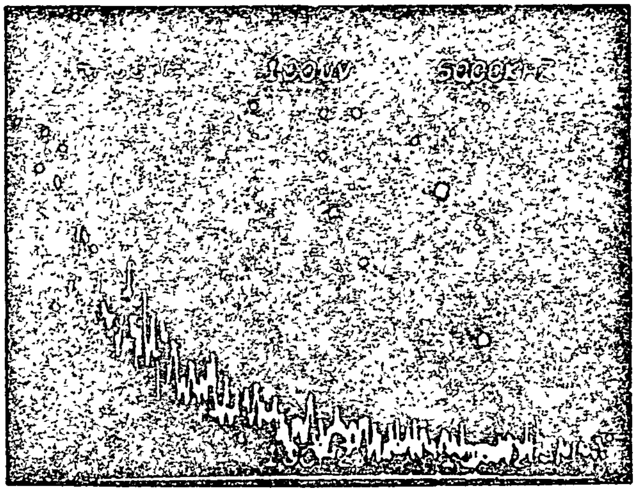


BAND 7
CH. 5

NOTE

APRIL 8, 1982
N. C. DAVISON

BAND 5/7 THERMAL VACUUM TEST DATA



BAND 7
CH. 6

NOTE

BAND 7
CH. 7

NOTE

APRIL 8, 1982
N.C. DAVISON

BAND 5/7 THERMAL VACUUM TEST DATA

ORIGINAL PAGE IS
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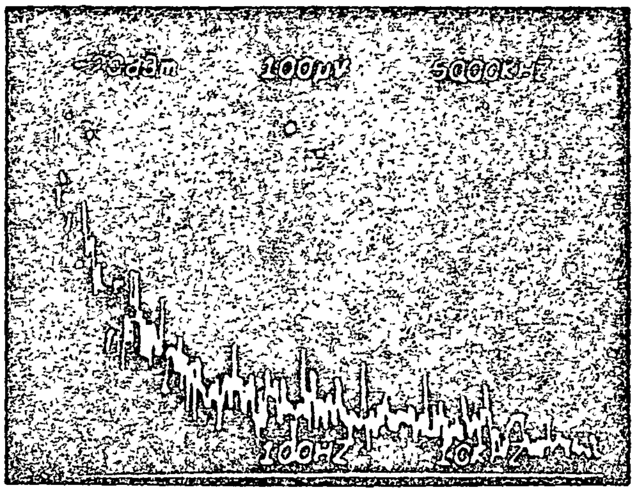
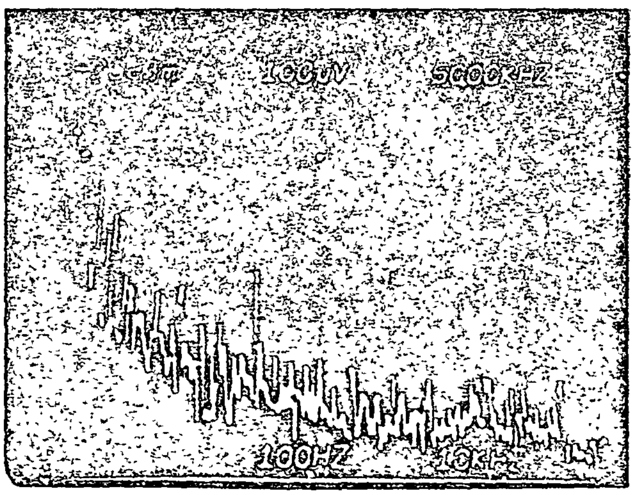


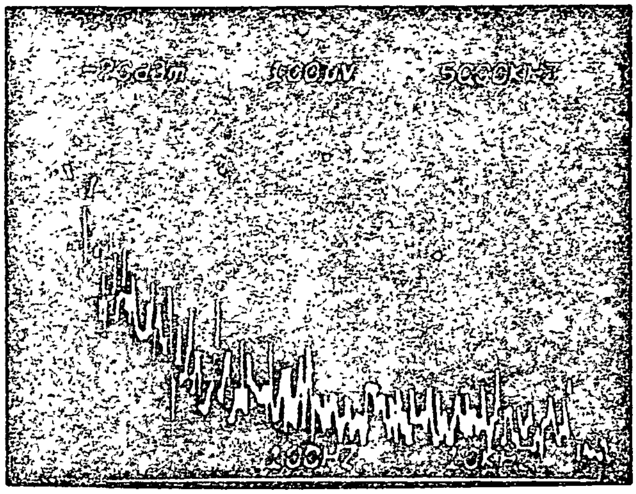
BAND 7
CH. 8
NOTE



BAND 7
CH. 9
NOTE

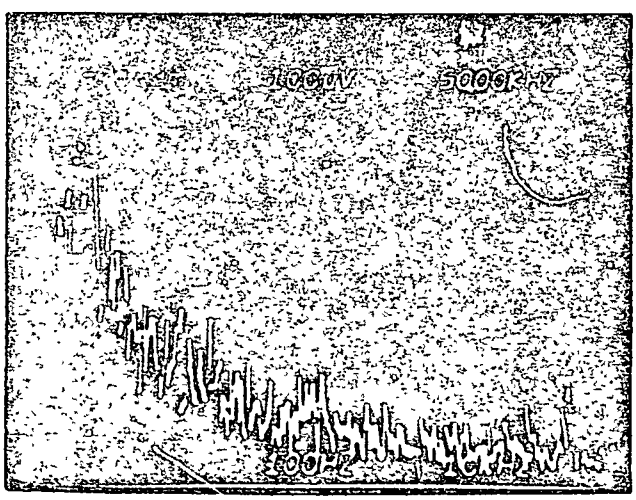
APRIL 8, 1982
N.C. DAVISON

BAND 5/7 THERMAL VACUUM TEST DATA



BAND 7
CH. 10

NOTE



BAND 7
CH. 11

NOTE

APRIL 8, 1982
N.C. DAVISON

BAND 5/7 THERMAL VACUUM TEST DATA

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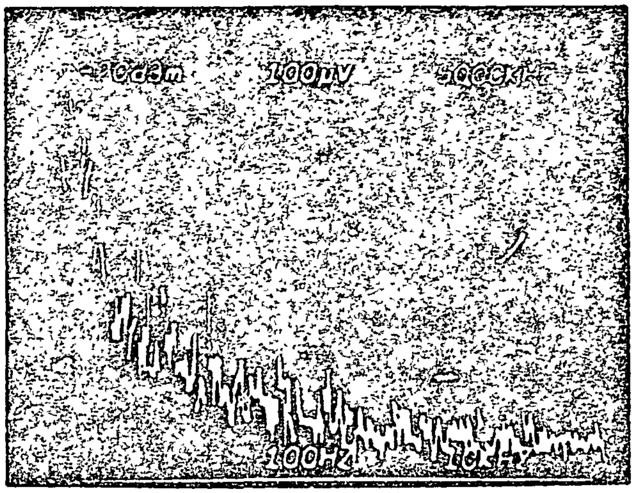
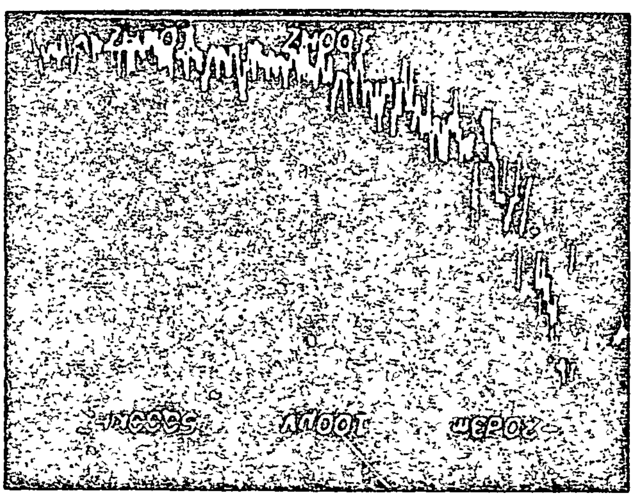


BAND 7
CH. 12

NOTE



BAND 7
CH. 13

NOTE

APRIL 8, 1982
N. C. DAVISON

BAND 5/7 THERMAL VACUUM TEST DATA

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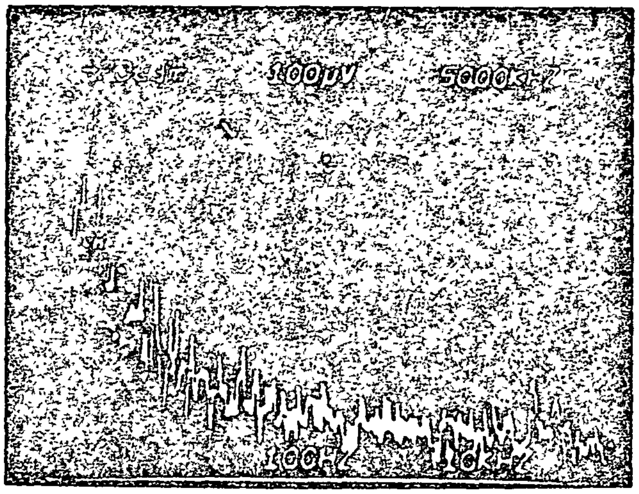
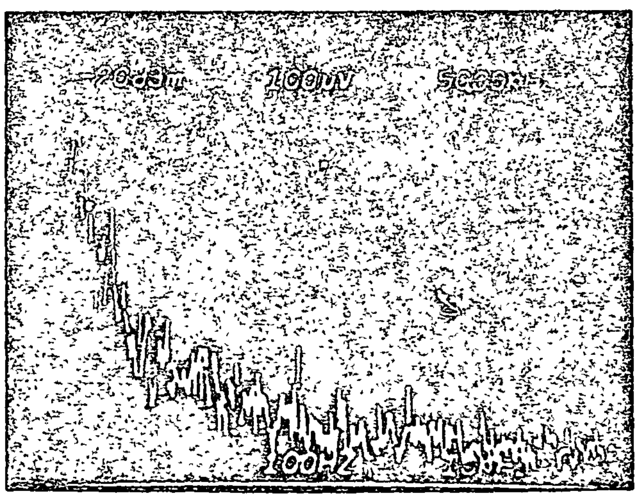


BAND 7
CH. 14

NOTE

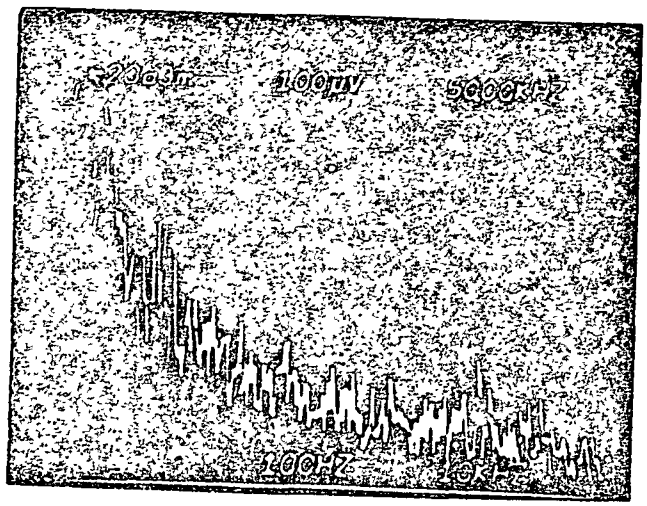


BAND 7
CH. 15

NOTE

APRIL 8, 1982 (I/172)
N.C. DAVISON

BAND 5/7 THERMAL VACUUM TEST DATA



BAND 7
CH. 16

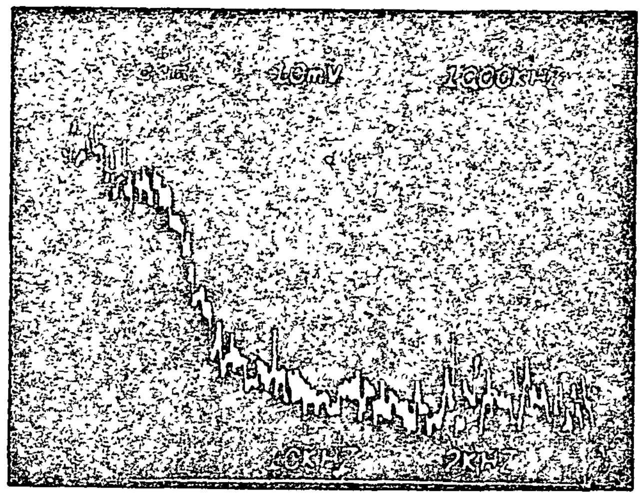
NOTE

BAND
CH.

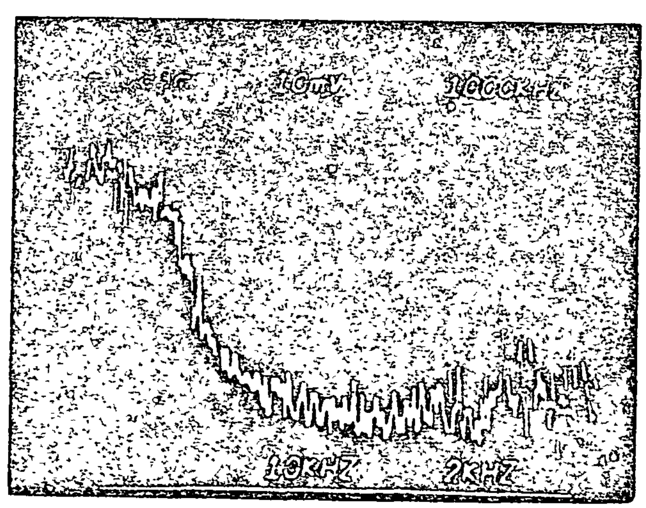
NOTE

APRIL 8, 1982
N.C. DAVISON

BAND 5/7 THERMAL VACUUM TEST DATA



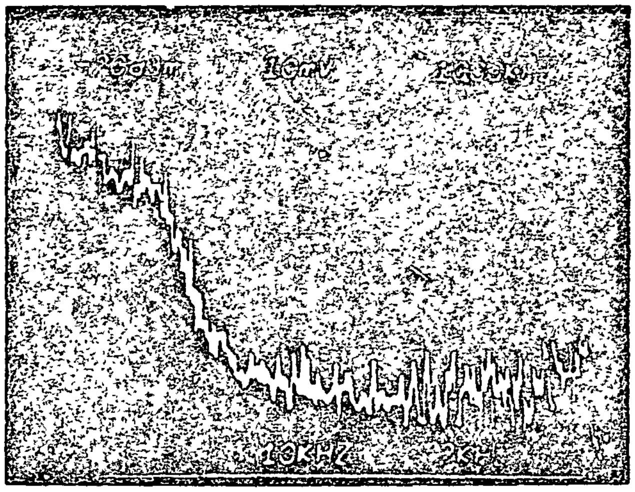
BAND 5
CH. 1
NOTE



BAND 5
CH. 2
NOTE

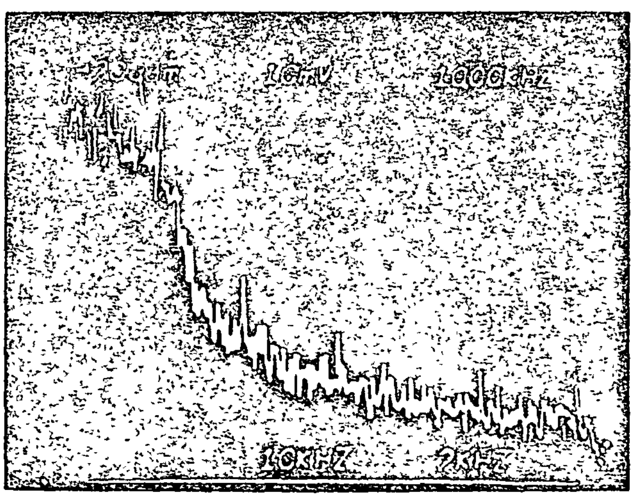
APRIL 8, 1982 (I/172)
N.C. DAVISON

BAND 5/7 THERMAL VACUUM TEST DATA



BAND 5
CH. 3

NOTE



BAND 5
CH. 4

NOTE

APRIL 8, 1982
N.C. DAVISON

BAND 5/7 THERMAL VACUUM TEST DATA

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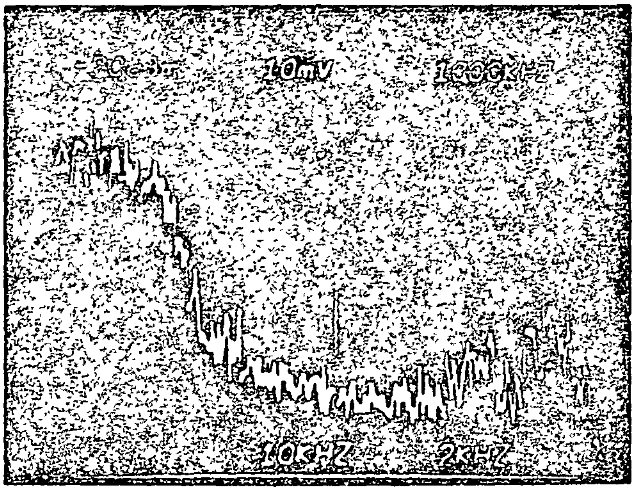
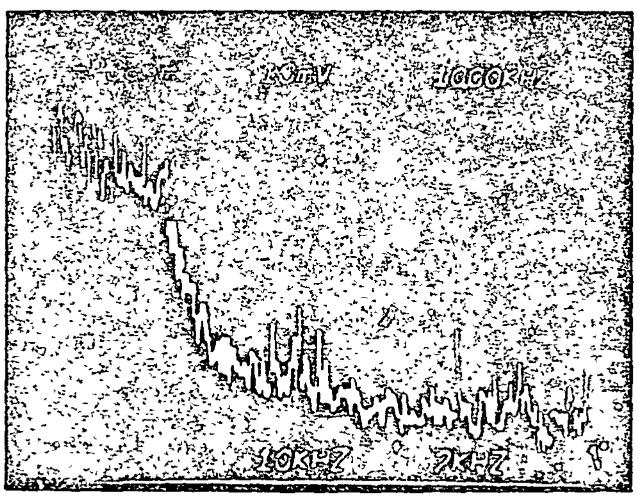


BAND 5
CH. 5

NOTE



BAND 5
CH. 6

NOTE

APRIL 8, 198[illegible]
N.C. DAVISON

1/172

BAND 5/7 THERMAL VACUUM TEST DATA

ORIGINAL PAGE IS
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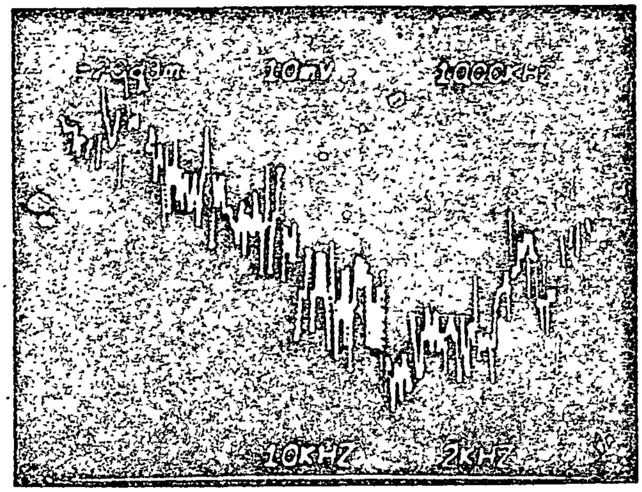
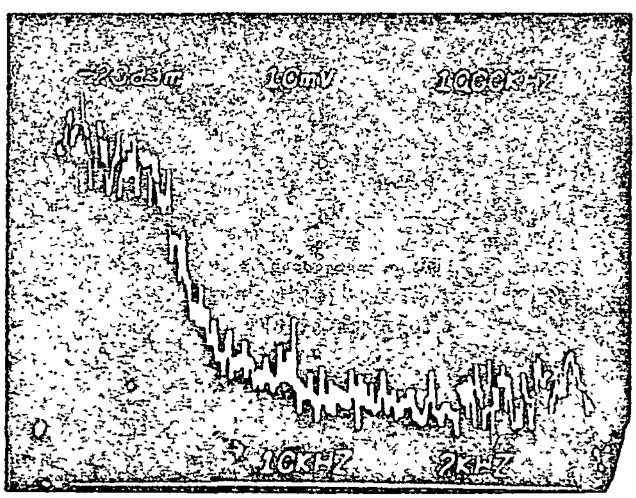


BAND 5
CH. 7

NOTE



BAND 5
CH. 8

NOTE

APRIL 8, 1982
N.C. DAVISON

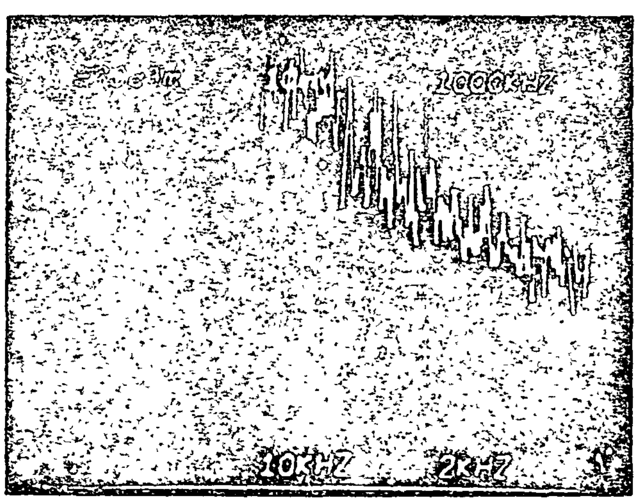
I
172

BAND 5/7 THERMAL VACUUM TEST DATA

ORIGINAL PAGE IS
OF POOR QUALITY

BAND 5
CH. 9

NOTE



BAND 5
CH. 9

NOTE

APRIL 8, 1982 (1)
N. C. DAVISON

BAND 5/7 THERMAL VACUUM TEST DATA

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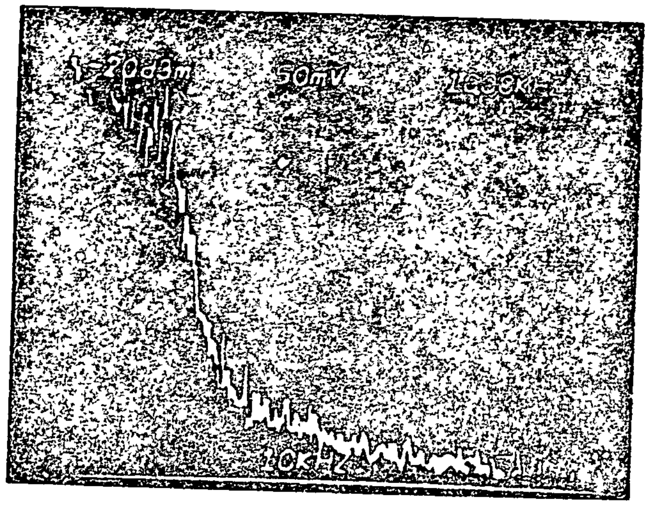

BAND 5
CH. 10
NOTE

BAND 5
CH. 11
NOTE

APRIL 8, 1982
N.C. DAVISON

BAND 5/7 THERMAL VACUUM TEST DATA

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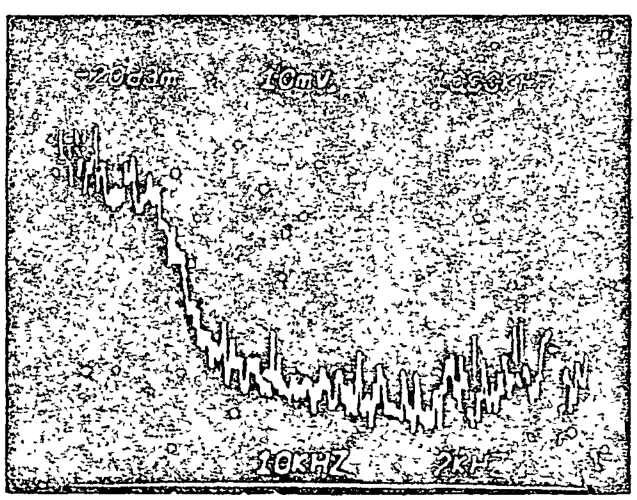
BAND 5
CH. 12

NOTE



BAND 5
CH. 13

NOTE

APRIL 8, 1982
N.C. DAVISON

BAND 5/7 THERMAL VACUUM TEST DATA

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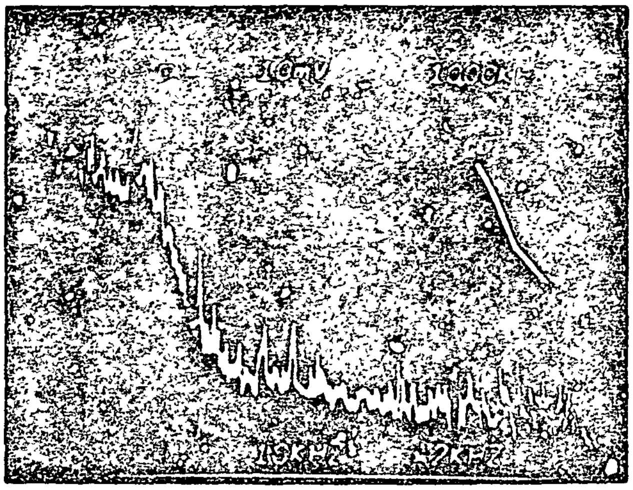
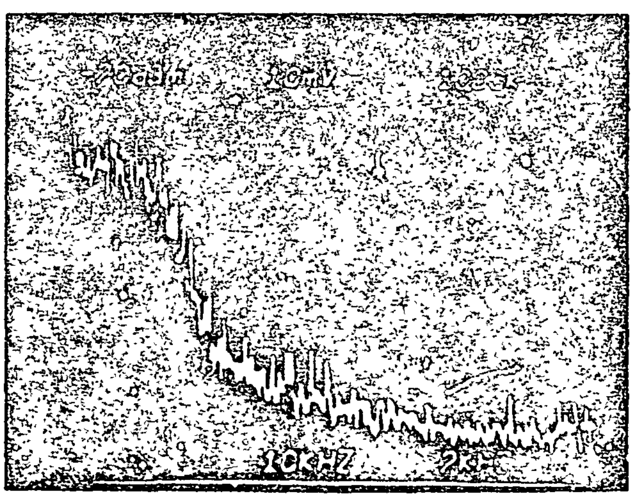


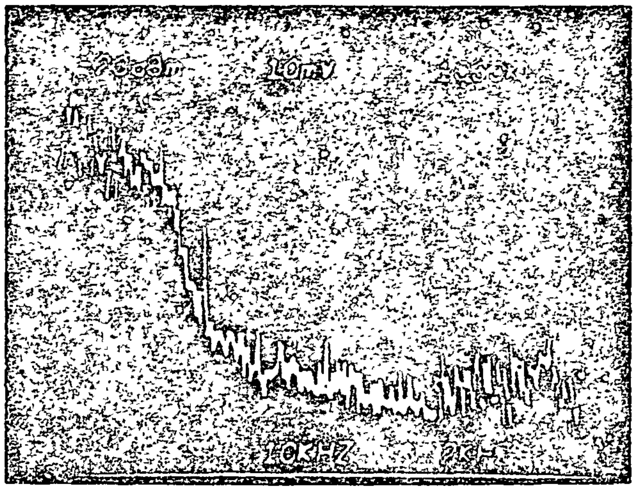
BAND 5
CH. 14
NOTE



BAND 5
CH. 15
NOTE

APRIL 8, 1987
N. C. DAVISON

BAND 5/7 THERMAL VACUUM TEST DATA



BAND 5
CH. 16

NOTE

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BAND
CH.

NOTE

APRIL 8, 1988
N.C. DAVISON

172

TEST SHEET 12
SHEET 2 OF 3

ORIGINAL PAGE IS
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SIGNAL/NOISE

CFPA SERNO 201 BAND 6 PREAMP SERNO 101 DATE: 04-05-82

BAND 6 POST AMP SERNO 201

T1 READING .979 VOLTS= ____ °K

T2 READING .9787 VOLTS= 89.89 °K

TEST ENGINEER C. R. Lore

BAND 6

CHANNEL	PREAMP OUTPUT (500mV/div)			POST AMP OUTPUT (10mV/div)			CALCULATIONS	
	SIGNAL 5mV/div	NOISE	BROAD BAND NOISE	SIGNAL 100mV/div	NOISE	BROAD BAND NOISE	MAX $\leq .93 \times 10^{-10}$ NEP λ	MIN ≥ 320 V/W R λ
1	39 mVpp		.195 VRMS	700 mVpp		.160 VRMS		
2	29		.200 V	740		.225 V		
3	40		.206 V	735		.165 V		
4	26		.185 V	685		.205 V		

POST AMP GAIN =
APERTURE TO FILTER =
DETECTOR AREA =
H_0^∞ =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =

PREAMP GAIN =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER =
SCOPE GAIN =

EQUIPMENT USED MODEL SERNO CAL DUE DATE

1)
2)
3)
4)
5)
6)
7)
8)

QA ENGINEER R. L. Dial (172)

DESIGN ENGINEER Bill C. Davis III (190) witness 4-5-82

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV D	SHEET 46

FORM NO. 0122-1-A (1-67) DIETZGEN POST CLEARPRINT 1020

ORIGINAL PAGE IS
OF POOR QUALITY

THERMAL VACUUM TEST *

TEMP.	CHANNELS	1	2	3	4
	R8' 908600-				
	R9' 908600-				
90°K ± 1.5°K	V_c	+2.46	+2.64	+1.55	+.929
	I_d				
	R_d				
	Signal/Noise				
	R_λ				
95°K ± 1.5°K	V_c				
	I_d				
	R_d				
	Signal/Noise				
	R_λ				
105°K ± 1.5°K	V_c				
	I_d				
	R_d				
	Signal/Noise				
	R_λ				
Added Temp if req'd.	V_c				
	I_d				
	R_d				
	Signal/Noise				
	R_λ				

Test Engineer C. L. Lowe Date 04-05-82

Design Engineer [signature] III Date 4-5-82

Q. A. Engineer [signature] (172) Date 4-5-82

(180) witness only 4-5-82

* See Sheet 1 for symbol definitions

SIZE	CODE IDENT NO.	NUMBER
A	11323	16162
SCALE	REV D	SHEET 43

ORIGINAL PAGE IS
OF POOR QUALITY

SIGNAL/NOISE

CFPA SERNO 201 BAND 6 PREAMP SERNO 101 DATE: 04-05-82

BAND 6 POST AMP SERNO 201

T1 READING 97216 VOLTS= 92.7°K

T2 READING 97249 VOLTS= 92.5°K (CALIB.)

TEST ENGINEER C. R. Lane

BAND 6

500µV/div 10mV/div

CHANNEL	PREAMP OUTPUT			POST AMP OUTPUT			CALCULATIONS	
	SIGNAL 5mV/div	NOISE	BROAD BAND NOISE	SIGNAL 100mV/div	NOISE	BROAD BAND NOISE	MAX $\leq .93 \times 10^{-10}$ NEP λ	MIN ≥ 3200 V/W Rλ
1	35mV	N/A	200mV	640mV	N/A	160mV		
2	26mV	N/A	195	645	N/A	225		
3	35mV	N/A	210	630	N/A	165		
4	23mV	N/A	185	560	N/A	205		

POST AMP GAIN =
APERTURE TO FILTER =
DETECTOR AREA =
H_0 =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =

PREAMP GAIN =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER =
SCOPE GAIN =

EQUIPMENT USED MODEL SERNO CAL DUE DATE

1)
2)
3)
4)
5)
6)
7)
8)

QA ENGINEER [signature] (I 172)

DESIGN ENGINEER [signature] III

(I 180) [signature] 4-5-82

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV	SHEET

FORM NO. ... CLEARPOINT 1980

ORIGINAL PAGE IS
OF POOR QUALITY

THERMAL VACUUM TEST *

TEMP.	CHANNELS	1	2	3	4
90°K ± 1.5°K	R8' 908600-				
	R9' 908600-				
	V_c				
	I_d				
	R_d				
	Signal/Noise				
	R_λ				
95°K ± 1.5°K 92.5K	V_c	2.09	2.38	1.24	.742
	I_d				
	R_d				
	Signal/Noise				
	R_λ				
105°K ± 1.5°K	V_c				
	I_d				
	R_d				
	Signal/Noise				
	R_λ				
Added Temp if req'd.	V_c				
	I_d				
	R_d				
	Signal/Noise				
	R_λ				

Test Engineer [signature] Date 04-05-82

Design Engineer [signature] III Date APRIL 5, 1982

Q. A. Engineer [signature] I 172 Date 4-5-82

I 180 witness 4-5-82

* See Sheet 1 for symbol definitions

SIZE	CODE IDENT NO	NUMBER
A	11323	15162
SCALE	REV D	SHEET 43

FORM NO 2122 DIETZGEN-POST CLEARPRINT 1000H

ORIGINAL PAGE IS OF POOR QUALITY

TEST SHEET 12
SHEET 2 OF 3

SIGNAL/NOISE

CFPA SERNO 201 BAND 6 PREAMP SERNO 101 DATE: 04-04-82

BAND 6 POST AMP SERNO 201

T1 READING N/A VOLTS= ____ °K

T2 READING N/A VOLTS= ____ °K

TEST ENGINEER C. R. Lane

BAND 6 T= 104.5K (c.s. PRT)

CHANNEL	PREAMP OUTPUT			POST AMP OUTPUT			CALCULATIONS	
	SIGNAL 5mV/div	NOISE	BROAD BAND NOISE	SIGNAL V/div	NOISE 10mV/div	BROAD BAND NOISE	MAX $\leq .93 \times 10^{-10}$ NEP λ	MIN ≥ 3200 V/W R λ
1	21mV			352mV	160 mV →			
2	13.5mV			345mV	200mV →			
3	20.5mV			351mV	160mV →			
4	12.0mV			300mV	180mV →			

POST AMP GAIN =
APERTURE TO FILTER =
DETECTOR AREA =
H_0^{∞} =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =

PREAMP GAIN =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER =
SCOPE GAIN =

EQUIPMENT USED MODEL SERNO CAL DUE DATE

1)
2)
3)
4)
5)
6)
7)
8)

QA ENGINEER [signature]

DESIGN ENGINEER [signature] III 4-5-82 written only

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV	SHEET

ORIGINAL PAGE IS OF POOR QUALITY

THERMAL VACUUM TEST *

TEMP.	CHANNELS	1	2	3	4
90°K ± 1.5°K	R8' 908600-				
	R9' 908600-				
	V_c				
	I_d				
	R_d				
	Signal/Noise				
	R_λ				
93°K ~~95°K~~ ± 1.5°K (REF.)	V_c	2.09	2.38	1.24	.742
	I_d				
	R_d				
	Signal/Noise				
	R_λ				
105°K ± 1.5°K (BY C.S. PRT)	V_c	1.102	1.860	.689	.422
	I_d				
	R_d				
	Signal/Noise				
	R_λ				
Added Temp if req'd.	V_c				
	I_d				
	R_d				
	Signal/Noise				
	R_λ				

Test Engineer C. P. L[illegible] Date 04-04-82

Design Engineer [illegible] III Date APRIL 4, 1982

Q. A. Engineer [illegible] Date 4-4-82

without sig (I/180) 4/5/82

* See Sheet 1 for symbol definitions

SIZE	CODE IDENT NO	NUMBER
A	11323	15182
SCALE	REV D	SHEET 40

FORM NO 2122 DIETERICH-POST CLEARPRINT 1000H

TEST RUN WITH THERMAL VAC. CABLES
BENCH TEST COOLER CONFIGURATION

TEST SHEET 12
SHEET 1 OF 3

PER. OP. 35913 COMMENT SHEET 15

SIGNAL/NOISE

CFPA SERNO 201 BAND 5 PREAMP SERNO 201 DATE: 4-9-82

BAND 5 POST AMP SERNO 201

T1 READING .969 VOLTS= ____ °K

T2 READING .969 VOLTS= ____ °K

TEST ENGINEER Slonaker/Lane

BAND 5

1 mV/div 20 mV/div

mV OFFSET	CHANNEL	PREAMP OUTPUT SIGNAL	PREAMP OUTPUT NOISE	BROAD BAND NOISE	POST AMP OUTPUT @ ≈ 1KHz SIGNAL	POST AMP OUTPUT @ ≈ 1KHz NOISE	BROAD BAND NOISE	CALCULATIONS MAX ≤5.8x10^-12 NEP λ	CALCULATIONS MIN ≥.8 A/W Rλ
-5	1			.21			.58		
-2	2			.21			.59		
-1	3			.27			.66		
-130	4			.93			2.4		
-3	5			.21			.58		
8	6			1.0			1.6		
+2	7			.20			.64		
-30	8			.37			.99		
+2	9			.22			.61		
+140	10			.75			2.1		
-1	11			.21			.63		
-800	12			2.1			3.2		
-2	13			.21			.68		
-5	14			.26			.69		
-2	15			.24			.61		
-2	16			.21			.64		

POST AMP GAIN=
APERTURE TO FILTER=
DETECTOR AREA=
H_0 =
BLACKBODY TO λ=
BLACKBODY TEMPERATURE=
DESIGN ENGINEER [signature]

FEEDBACK RESISTOR=
NOISE CORRECTION FACTOR
BANDWIDTH=
APERTURE DIAMETER=
SCOPE GAIN=
Q.A. ENGINEER [signature]

[signature] 4.9.82

TITLE	SIZE	CODE IDENT NO	NUMBER
ORIGINAL PAGE IS OF POOR QUALITY	A	11323	16192
	SCALE	REV	SHEET

FORM NO. DIETZGEN-POST CLEARPRINT 1020

PER COMMENT SHEET 17
OPERATION 35908

ORIGINAL PAGE IS
OF POOR QUALITY

TEST SHEET 12
SHEET 3 OF 3

SIGNAL/NOISE

CFPA SERNO 201 BAND 7 PREAMP SERNO 201 DATE: 4-9-82

BAND 7 POST AMP SERNO 201

T1 READING ________ VOLTS= 94 °K

T2 READING .969 VOLTS= 94.0 °K

TEST ENGINEER
S[illegible]

BAND 7 10mV/cm

CHANNEL	PREAMP OUTPUT			POST AMP OUTPUT			CALCULATIONS	
			BROAD BAND NOISE	@ ≈ 1KHz		BROAD BAND NOISE	MAX $\leq 4.8 \times 10^{-12}$ W NEP λ	MIN ≥ 1.0 A/W Rλ
	SIGNAL	NOISE		SIGNAL	NOISE			
1	1.20V							
2	1.23							
3	1.23							
4	1.24							
5	1.22							
6	1.27							
7	1.24							
8	1.23							
9	1.15							
10	1.27							
11	1.15							
12	1.32							
13	1.23							
14	1.31							
15	1.28							
16	1.27							

POST AMP GAIN =
APERTURE TO FILTER = 4.85"
DETECTOR AREA =
H_0^{∞} =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE = 800 °K
DESIGN ENGINEER [illegible]

FEEDBACK RESISTOR =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER = .11 in
SCOPE GAIN =
QA ENGINEER [illegible]

I 172

I 172 [illegible] 4-9-82

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV	SHEET

FORM NO. 8128-1-A (1-65) DIETZGEN-POST CLEARPRINT 1020

PER COMMENT SHEET 17
OPERATION 35908

TEST SHEET 12
SHEET 1 OF 3

ORIGINAL PAGE IS
OF POOR QUALITY

SIGNAL/NOISE

CFPA SERNO 201 BAND 5 PREAMP SERNO 201 DATE: 4-9-82

BAND 5 POST AMP SERNO 201

T1 READING ________ VOLTS= 95 °K

T2 READING .1969 VOLTS= 95 °K

TEST ENGINEER
Slonaker

BAND 5

CHANNEL	PREAMP OUTPUT			POST AMP OUTPUT			CALCULATIONS	
	SIGNAL	NOISE	BROAD BAND NOISE	@ ≈ 1KHz SIGNAL	@ ≈ 1KHz NOISE	BROAD BAND NOISE	MAX $\leq 5.8 \times 10^{-12}$ NEP λ	MIN $\geq .8$ A/W Rλ
1	1.[illegible]17							
2	1.09							
3	1.23							
4	0.81							
5	1.13							
6	1.11							
7	1.21							
8	1.12							
9	1.09							
10	0.32							
11	1.16							
12	0.73							
13	1.16							
14	1.13							
15	1.2[illegible]6							
16	1.[illegible]18							

POST AMP GAIN =
APERTURE TO FILTER = 94.85 in
DETECTOR AREA =
H_0^{∞} =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE = 800 °K

FEEDBACK RESISTOR =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER = .1 in
SCOPE GAIN =
Q.A. ENGINEER

DESIGN ENGINEER Walter C. Davison III
witness 4-9-82

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV	SHEET

FORM NO. [illegible] DIETZGEN-POST CLEARPRINT 1020

PER COMMENT SHEET
PAGE 16 OPERATION 35905

TEST SHEET 12
SHEET 1 OF 3
operation 35905

ORIGINAL PAGE IS OF POOR QUALITY

SIGNAL/NOISE

CFPA SERNO 201 BAND 5 PREAMP SERNO 201 DATE: 4-9-82

BAND 5 POST AMP SERNO 201

T1 READING —— VOLTS= 94 °K

T2 READING .969 VOLTS= 94.0 °K

TEST ENGINEER
N.C. Davison, III

BAND 5 1mV/div

D.C. OFF-SET	CHANNEL	PREAMP OUTPUT SIGNAL	PREAMP OUTPUT NOISE	PREAMP OUTPUT BROAD BAND NOISE	POST AMP OUTPUT @ ≈ 1KHz SIGNAL	POST AMP OUTPUT @ ≈ 1KHz NOISE	POST AMP OUTPUT BROAD BAND NOISE	CALCULATIONS MAX $\leq 5.8 \times 10^{-12}$ NEP λ	CALCULATIONS MIN $\geq .8$ A/W Rλ
-7mV	1			.21					
-2mV	2			.21					
-1 mV	3			.26					
-150 mV	4			.94					
-3 mV	5			.21					
9 mV	6			1.2					
+2 mV	7			.21					
-30 mV	8			.37					
+2 mV	9			.22					
+130 mV	10			.74					
0	11			.20					
-400 mV	12			2.3					
-2	13			.21					
-4	14			.26					
-2	15			.23					
-2	16			.21					

POST AMP GAIN=
APERTURE TO FILTER=
DETECTOR AREA=
H_0^∞ =
BLACKBODY TO λ=
BLACKBODY TEMPERATURE=
DESIGN ENGINEER [signature] III

FEEDBACK RESISTOR=
NOISE CORRECTION FACTOR
BANDWIDTH=
APERTURE DIAMETER=
SCOPE GAIN=
Q.A. ENGINEER [signature] I 120

I 120 initials 4.9.82

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV	SHEET

POST THERMAL VAC TEST
COOLER CONNECTED TO BTC
BENCH TEST COOLER CONFIGURATION

TEST SHEET 12
SHEET 3 OF 3

PER OP. 35403
COMMENT SHEET 15

SIGNAL/NOISE

CFPA SERNO 201 BAND 7 PREAMP SERNO 201 DATE: 04-09-82

BAND 7 POST AMP SERNO 201

T1 READING .969 VOLTS= °K

T2 READING .968 VOLTS= °K

TEST ENGINEER C. B. Lane

BAND 7

1mV/div 50mV 20mV/div

mV OFFSET	CHANNEL	PREAMP OUTPUT SIGNAL	PREAMP OUTPUT NOISE	PREAMP OUTPUT BROAD BAND NOISE	POST AMP OUTPUT @ ≈ 1KHz SIGNAL	POST AMP OUTPUT @ ≈ 1KHz NOISE	POST AMP OUTPUT BROAD BAND NOISE	CALCULATIONS MAX $\leq 4.8 \times 10^{-12}$ W NEP λ	CALCULATIONS MIN ≥ 1.0 A/W Rλ	OSC
-10.0	1		1.86mV/√Hz	.29		.627mV/√Hz	.76			
+1.0	2		.913	.23		.344	.66			
-3.0	3		.846	.23		.395	.60			1mV 400
+1.0	4		.805	.21		.400	.67			
-2.0	5		.937	.21		.436	.62			
-4.0	6		.694	.19		.496	.76			
-2.5	7		.917	.21		.471	.65			
0.0	8		.871	.20		.400	.69			
-5.5	9		.998	.23		.684	.77			
0.0	10		.810	.21		.466	.74			
-1.5	11		.780	.22		.481	.69			
-0.5	12		.881	.22		.481	.72			
-1.0	13		.851	.24		.441	.58			1mV 200
0.0	14		.836	.23		.365	.69			
-2.5	15		.800	.21		.410	.59			
-3.5	16		.653	.21		.436	.65			

POST AMP GAIN =
APERTURE TO FILTER =
DETECTOR AREA =
H_0^∞ =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =
DESIGN ENGINEER

FEEDBACK RESISTOR =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER =
SCOPE GAIN = 480
QA ENGINEER

1/186 4.9.82

TITLE	SIZE	CODE IDENT NO	NUMBER
ORIGINAL PAGE IS OF POOR QUALITY	A	11323	16192
	SCALE	REV	SHEET

FORM NO. DIETZGEN-POST CLEARPRINT

4

PER COMMENT SHEET
PAGE 16 OPERATION 35905

TEST SHEET 12
SHEET 3 OF 3
Operation 35905

SIGNAL/NOISE

CFPA SERNO 201 BAND 7 PREAMP SERNO 201 DATE: 4-9-82

BAND 7 POST AMP SERNO 201

T1 READING ——— VOLTS= 94 °K

T2 READING .969 VOLTS= 94.0 °K

TEST ENGINEER
N. C. DAVISON, III

BAND 7 100V/div

D.C OFF-SETS	CHANNEL	PREAMP OUTPUT SIGNAL	PREAMP OUTPUT NOISE	PREAMP OUTPUT BROAD BAND NOISE	POST AMP OUTPUT @ ≈ 1KHz SIGNAL	POST AMP OUTPUT @ ≈ 1KHz NOISE	POST AMP OUTPUT BROAD BAND NOISE	CALCULATIONS MAX $\leq 4.8\times10^{-12}$W NEP λ	CALCULATIONS MIN ≥ 1.0 A/W Rλ
-10	1			.29 ✓					
+1	2			.23					
-3	3			.22					
+1	4			.21					
-2	5			.20					
-4	6			.19					
-6 -2	7			.22					
0	8			.20					
-6	9			.23					
0	10			.21					
-1	11			.21					
0	12			.22					
-1	13			.23					
+80	14			.23					
-82	15			.20					
-3	16			.21					

POST AMP GAIN=
APERTURE TO FILTER=
DETECTOR AREA=
H_0^{∞} =
BLACKBODY TO λ=
BLACKBODY TEMPERATURE=
DESIGN ENGINEER N. C. Davison III

FEEDBACK RESISTOR=
NOISE CORRECTION FACTOR
BANDWIDTH=
APERTURE DIAMETER=
SCOPE GAIN=
QA ENGINEER R. Lillie 172
4.9.82

TITLE	SIZE	CODE IDENT NO	NUMBER
ORIGINAL PAGE IS OF POOR QUALITY	A	11323	16192
	SCALE	REV	SHEET

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Radiative Cooler

Performanace Data

Part 3

Supplementary Data

Special Test F-010

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STR NO F 010

PAGE 1 OF 1

SPECIAL TEST REQUEST

TITLE POST THERMAL VAC REPEAT OF PORTION THEREOF ORIGINATOR D. KUYPER

INSTRUMENT/MODEL TM F1 RAD COOLER MAJOR TEST PHASE ACCEPTANCE

APPLICABLE DOC. 16188 APPROX. TEST TIME 4 DAYS

PURPOSE OF TEST: REPEAT PERFORMANCE TESTS OF BANDS 5, 6 AND 7 DETECTORS. (REF. FR S8117)
REPEAT VERIFICATION OF PRIMARY TEMPERATURE CONTROLLER 105K AND 95K SETPOINTS.

TEST CONFIGURATION: AS DESCRIBED ON AHR 51200, PART III, SUPPLEMENT NO. 4.

TEST PROCEDURE: AS DESCRIBED ON AHR 51200, PART III, SUPPLEMENT NO. 4.

REA
~~ST&I MANAGER~~ D. Kuyper DATE: 4-21-82

SYST. ENG. MANAGER [signature] DATE: 4/21/82

PROD. ASSUR. MANAGER [signature] DATE: 4/21/82

THEMATIC MAPPER
PF & F1 ONLY
George B. Grant [illegible]

(USE CONTINUATION SHEETS IF REQUIRED)

SBRC

ASSEMBLY HISTORY RECORD SUPPLEMENT

SHEET 1 OF 12

PART NUMBER	SERIAL OR LOT NUMBER	DRAWING NO.	DRAWING REVISION	SEA SOURCE CODE	PREPARED BY
51200	003	51200	E	22-31	D. Dascomb

SUPPLEMENT NO 4 TO PART III
AHR DATED 25 MARCH 82

ASSEMBLY NAME: COOLER ASSEMBLY, RADIATIVE

APPLICABLE

RESP ENG APPROVAL / QUALITY APPROVAL / PRODUCTION APPROVAL / PRODUCT APPROVAL / OTHER / OTHER: AFQA

SUPPLEMENT RELEASE DATE 21 APR 82

PURPOSE OF SUPPLEMENT - INCORPORATES NEW ASSY DWG REVISION [ ] OR EOs[ ]; REWORK [ ], OTHER [X]. EXPLAIN:
TO PROCESS SPECIAL TEST REQUEST NO. F 010 FOR ADDITIONAL THERMAL VACUUM TESTING.

NOTE TO PRODUCTION - UPON RECEIPT, ENTER SUPPLEMENT NO. AND RECEIPT DATE ON FRONT SHEET OF AHR. INITIAL THE ENTRY.

NOTES: APPLICABLE DOCUMENTS:
16188, FR S8117

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
		CAUTION: THIS ASSEMBLY IS STATIC SENSITIVE; PLEASE REF.				
		DRAWING NOTE 24.				
		QUALITY ASSURANCE SURVEILLANCE SHALL BE PERFORMED DURING				
		TEST. NOTIFY Q.A. AND AFQA PRIOR TO STARTING TESTS.				
		THIS SUPPLEMENT AHR IS TO BE PERFORMED AFTER OPERATION				
		38017 OF SUPPLEMENT 51200, AHR NO. 3, PART III, DATED				
		20 APRIL 1982.				
NOTE		QUALITY SURVEILLANCE IS MANDATORY DURING MOVEMENT				
		OF THE RADIATION COOLER TO STAGE AREAS AND DURING				

SB 0295C JAN 81 SET UP IN TV CHAMBER

4-22-82

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SB_C ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 4

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
		THE PARAGRAPH CALLOUTS IN THIS DOCUMENT REFER TO SPEC 16188,				
		REV B, UNLESS OTHERWISE SPECIFIED.				
		NOTE: THE RADIATIVE COOLER MUST BE PREPARED FOR TESTING IN				
		AN ULTRA-CLEAN, WHITE-GLOVE AREA UNDER A LAMINAR FLOW BENCH.				
		THE AREA DESIGNATION IS YELLOW. INSPECT, CLEAN AND HANDLE				
		PER SPEC 16174, REV A.				
		CAUTION: USE OF THREE PAIRS OF GLOVES IS PREFERRED FOR				
		ASSEMBLY/HANDLING. THE FIRST PAIR SHOULD BE COTTON; THE SEC-				
		OND SHOULD BE POLYETHYLENE; AND THE THIRD SHOULD BE NYLON				
		PER SPEC 16174, REV A. SINGLE-GLOVE HANDLING IS ACCEP-				
		TABLE WHEN THE SURFACES BEING TOUCHED ARE NOT THERMALLY				
		CRITICAL.				

SB..C

ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 4

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
38018	22-74	INSTALL INSTRUMENTATION TEST LEADS TO COLD STAGE, INTERMED-	CS		4/22/82	
		IATE STAGE RADIATORS AND AMBIENT STAGE TO MONITOR STAGE-TO-				
		STAGE ELECTRICAL RESISTANCE PER PARA 4.3.2 AND REA DIRECTION.				
38019	22-74	DOUBLE BAG THE COOLER/PREAMP ASSEMBLY AND TRANSPORT TO THE	CS		4/23/82	
		CHAMBER PER PARA 4.2.5.1.f.				
38020	51-11	INSTALL THE COOLER/PREAMP/MOUNTING PLATFORM IN THE SBS PER	CS		4/22/82	
	22-74	77682, REV A AND PARA 4.2.5.1.f. EO 2432 B				

SD 0205A DEC 77

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SB[illegible] ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY,RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 4

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
38021	51-11	MATE INTERNAL TEST CABLING PER 77682, REV A, AND PARA 4.2.5.2.	[illegible]		4/22/82	
38022	51-11 22-74	PERFORM FINAL ELECTRICAL CHECKOUT AT THE BULKHEAD EXTERNAL PINS PER PARA 4.2.5.4. LOG DATA PER APPENDIX 10, AND ATTACH COPIES OF DATA SHEETS TO THIS AHR. SPEC 16188, REV B.	[illegible]		4/22/82	
38023	51-41	Q.A. WITNESS ABOVE ELECTRICAL CHECKOUT.		1196	4/22/82	[illegible] F/R ~~[illegible]~~ 8106
38024	51-11	TEMPORARILY CLOSE CHAMBER PER PARA 4.2.5.4.	[illegible]		4/22/82	

SB 0005A DEC 77

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SB..C ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 4

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
38025	51-11	CONNECT EXTERNAL CABLING PER PARA 4.2.5.5.			4/22/82	
38026	22-31	VERIFY FINAL FUNCTIONAL INTEGRITY OF THE TEST SET UP PER				OK TO PROCEED
	22-13	PARA 4.2.5.6. (REA, ELECTRICAL, Q.A. AND SYSTEMS TEST ENG-	MJS		4-22-82	INTO VAC + BAKE TEST TO AS
	22-41	INEERS).				4-22-8
	51-41		AB		4/22/82	
38027	51-11	CLOSE CHAMBER AND INITIATE PUMPDOWN PER PARA 4.2.7.a.			4/22/82	
38028	51-11	ELEVATE TEST ARTICLES AND SBS TO 45°C BAKEOUT TEMPERATURE.			4/22/82	
		VACUUM BAKE FOR 48 HOURS OR UNTIL CHAMBER PRESSURE REACHES				
		A VALUE $\leq 2 \times 10^{-5}$ TORR.				

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SR..C ASSEMBLY HISTORY RECORD CONTINUATION SHEET — SHEET 6 OF 12

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 4

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
38029	22-31	VERIFY BAKEOUT WITH CHAMBER PRESSURE NO GREATER THAN 2 X 10^{-5}	CAR		4/23/82	Pressure 4.4X10^{-4} torr
	51-41	mm Hg PRIOR TO PROCEEDING.				(1 torr = 1 mmHg)
38030	51-11	INITIATE COOLDOWN OF SBS AND COOLER PER PARA 4.2.8.a THROUGH	CAR		4/23/82	
		h.				
38031	22-13	VERIFY INITIAL CONDITIONS FOR PRIMARY TEMPERATURE CONTROLLER	CAR		4/29/82	
		CHECKOUT PER PARA 4.3.1.1. SEE APP. 60 SHT. 42				
		305.89 Ω ≡ 103.85°K				
		COLD STAGE PRT "4 WIRE" MEASUREMENT				

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SB_C ASSEMBLY HISTORY RECORD CONTINUATION SHEET — SHEET 7 OF 1_

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 4

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
38032	22-13	WHEN THE COLD STAGE TEMPERATURE FALLS BELOW 105K, VERIFY PRIMARY CONTROLLER SET POINT AND OPERATION AT 105K PER PARA 4.3.1.3. RECORD DATA IN APPENDIX 60.	NC		4/24/82	T_{SET} = 105.3 K
38032A	22-13	SWITCH TO BACKUP (REDUNDANT) CONTROLLER AND PERFORM THE STEPS OF PARA 4.3.1.2. RECORD DATA IN APPENDIX 60.		[illegible]	4/22/82	F/R 58124 OK to proceed to operation No. 38032. D. Huff 4/24/82
38033	22-13	WITH THE PRIMARY CONTROLLER OPERATING AT 105K ± 1K, COLLECT BAND 6 RESPONSIVITY AND NEP DATA PER 16192. RECORD DATA ON TEST DATA SHEET 12, SHEET 2 OF 16192.	CRL		04/24/82	[illegible] 4/24/82 G.B. [illegible] 4/24/82
38034	51-41	Q.A. REVIEW ABOVE TEST DATA.	AB	172	4/[illegible]	

I/51 A-23-82

SB 0205A DEC 77

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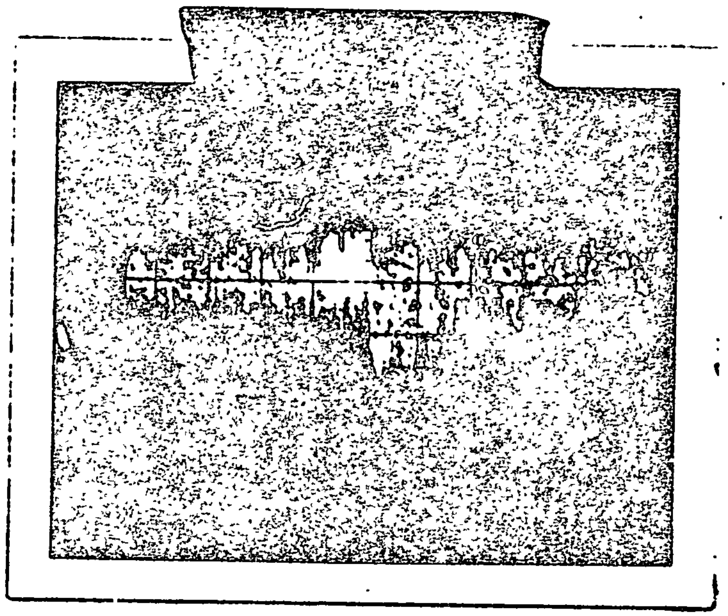
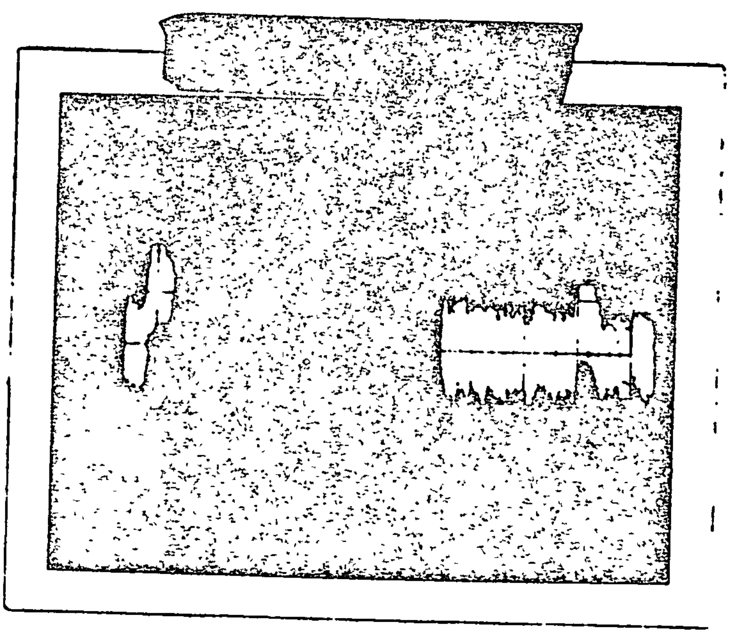
04-24-82
C.R. Lane



BAND 5, CH. 10
POPCORN NOISE
2mV/div X 2mS/div



BAND 5, CH. 10

POPCORN NOISE
2mV/div X 5mS/div

SBC ASSEMBLY HISTORY RECORD CONTINUATION SHEET

SHEET 8 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 4

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
38035	22-13	WITH THE PRIMARY CONTROLLER OPERATING AT 105 ± 1K, MEASURE	CRL		4/24/82	
		THE WIDEBAND NOISE, DC OFFSET AND SIGNAL ON ALL CHANNELS OF				
		BANDS 5 AND 7 PER 16192 AND E.O.4136A. RECORD WIDEBAND NOISE				
		AND SIGNAL DATA ON TEST DATA SHEET 12, SHEETS 1 AND 3 OF				
		16192. RECORD OFFSET ON TEST DATA SHEET 15 OF 16192.				
38036	51-41	Q.A. REVIEW ABOVE TEST DATA.	AB	82	4/28/82	
38037	22-13	TURN OFF PRIMARY CONTROLLER AND ALLOW THE COLD STAGE TEMPER-	NED		4/25/82	
		ATURE TO FALL BELOW 95K. VERIFY PRIMARY CONTROLLER SET POINT				
		AND OPERATION AT 95K. RECORD DATA IN APPENDIX 60.				
		NOTE: THE USE OF LIQUID NEON TO ACHIEVE 95K IS OPTIONAL.				

SB 0205A DEC 77

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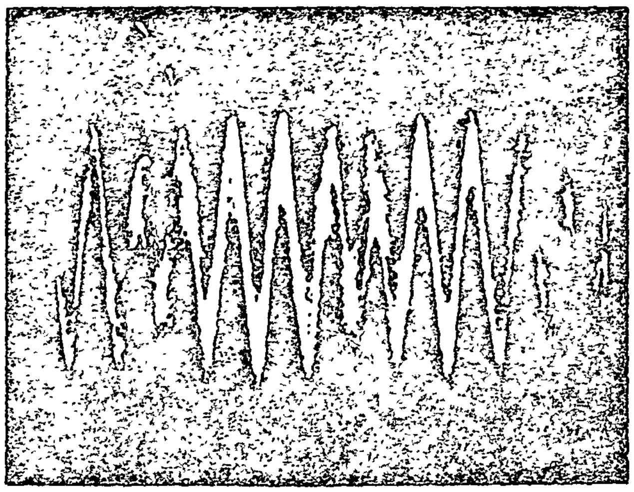

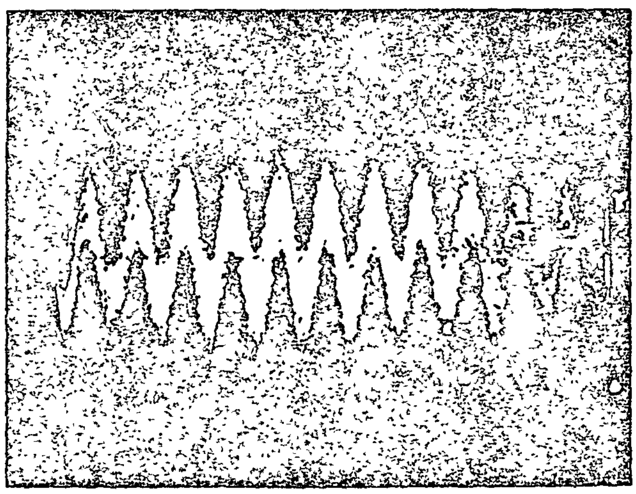

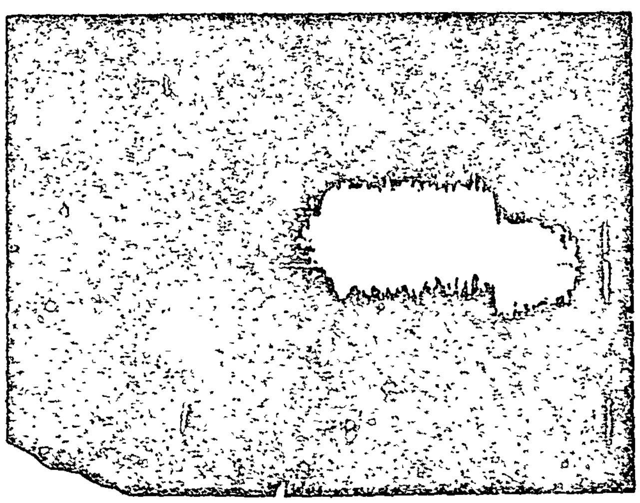

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 4

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
38038	22-13	WITH THE PRIMARY CONTROLLER OPERATING AT 95K ± 1K, MEASURE	NCD		4/25/82	
		WIDEBAND NOISE, DC OFFSET AND SIGNAL ON ALL CHANNELS OF BANDS				
		5 AND 7 PER 16192 AND E.O.4136A. RECORD WIDEBAND NOISE AND				
		SIGNAL DATA ON TEST DATA SHEET 12, SHEETS 1 AND 3 OF 16192.				
		RECORD OFFSET ON TEST DATA SHEET 15 OF 16192. $V_D = .96705V$				
		$[(V_D - .0004) - 1.18868] \div (-.002336) = 95.0K$	NCD		4/25/82	
		USING CFPA TEMP MONITOR BOX P/N 76880				
38039	51-41	Q.A. REVIEW ABOVE TEST DATA.		1172	4/26/82	SEE TEST SHEET 12 CHANNEL 9 & 10 REF. F/R # B370
38040	22-13	TURN OFF PRIMARY CONTROLLER. VERIFY THAT THE COOLER COLD	NCD		4/25/82	
		STAGE AND INTERMEDIATE STAGE PRT SENSORS AND HEATERS ARE				
		CONNECTED TO THEIR RESPECTIVE CONTROLLERS.				

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 4

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
38041	22-13	ENABLE BOTH OUTGAS CONTROLLERS SIMULTANEOUSLY. WARM UP BOTH	CRL		04/26/82	
		STAGES OF THE COOLER UNTIL THE COLD STAGE AND INTERMEDIATE				
		STAGE PRT'S INDICATE STABILITY HAS BEEN ACHIEVED AT THE				
		NOMINAL 20°C SET POINT.				
38042	51-11	TERMINATE TESTING PER THE INSTRUCTIONS OF PARA 4.13, TAKING	CRL		04/27/82	
		CARE TO KEEP THE COOLER STAGES WARMER THAN THE SBS DURING				
		WARMUP.				
38043	22-31	ATTACH COPIES OF ALL DATA SHEETS TO THIS AHR.	CRL		04/27/82	

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

SHEET 11 OF 1..

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 4

OPER NO.	S/C NO	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
38044	51-41	Q.A. ENGINEER REVIEW DATA SHEETS TO ENSURE THE REQUIREMENTS	RD	I 172	4/27/82	
		OF THIS AHR AND SPEC 16188, REV B, HAVE BEEN MET WHERE				
		APPLICABLE.				
38045	51-11	OPEN CHAMBER AND REMOVE TEST CABLES FROM TEST ARTICLES. RE-			4/27/82	
		MOVE COOLER/PREAMP FROM CHAMBER.				
38045A	22-74	REMOVE BLACKBODY BRACKET FROM COOLER			4/27/82	4/27/82 (I 172)
		ASSY. AND MOUNTING PLATFORM. I 172 4/27/82				
38046	22-74	TRANSPORT COOLER/PREAMP TO FLOW BENCH. COOLER MUST BE DOUBLE			4/27/82	
		BAGGED IF NOT IN CLEAN AREA.				
38046A	22-74	REMOVE MOUNTING PLATFORM FROM COOLER ASSY.			4/27/82	4/27/82 (I 172)
		INSTALL PLEXI-GLASS COVER ON SHIELD ASSY FOR BENCH TEST. I 172 4/27				
38047	22-74	REMOVE INSTRUMENTATION TEST LEADS INSTALLED TO THE COLD AND			4/27/82	
		INTERMEDIATE STAGE RADIATORS PER PARA 4.3.2. RETORQUE SCREWS				
		DISTURBED PER DRAWING 51310, REV B.				

FD MOE1 DEC 77

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 4

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
38048	51-41	Q.A. WITNESS TORQUE ABOVE.		107	4/27/82	
38049	51-41	Q.A. REVIEW THIS AHR AND ORIGINAL AHR 51200, S/N 003, PART III FOR COMPLETENESS. ISSUE A BLUE FORM 57 FOR COMPLETE COOLER ASSEMBLY.	[illegible]	172	[illegible]	
	AF	MCI		[illegible]	4/28/82	
		RETURN TO ORIGINAL AHR 51200 S/N 003, PART III, OPERATION 38100.				

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SBRC	ASSEMBLY HISTORY RECORD WORK SHEET			SHEET 1 OF
PART NUMBER 51700	SERIAL OR LOT NUMBER 001	ASSEMBLY NAME TM	PART OF: AHR DATED AHR SUPPLEMENT NO.	

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
	2213	Remove 50942 assembly from	NC	4/24/82		NC
		test set up. Per F.R. 8124			Ref. F/R #8124	[illegible]
	2213	Cut collector lead to transistor	NC	4/24/82		NC
		~~[illegible]~~ close to terminal of Q10.				[illegible] 4/25/82
						[illegible]
	2213	Measure resistance between	NC	4/24/82	TRANSISTOR Q10	NC
		collector and emitter of Q10.			IS DEFINITELY	
		Record value below.			BAD!	F/R 8118
		$R_{C-E} = 21.4\ \Omega$				

SB 0295B DEC 77

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[SBRC] ASSEMBLY HISTORY RECORD WORK SHEET — SHEET 2 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF:
51200 50942	202	Temp. Control / DC Restore Board (A4)	AHR DATED AHR SUPPLEMENT NO. 4

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC. (S8320)	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
		Trouble shooting under FR				
After 38038 -A	22-17	Measured ~4.0mV P-P and 6.0μS period (167kHz) and popcorn effects on heater wires (both) (FPA Htr). Also measured ~100mV P-P on control diode at 6.0μS and 75mV P-P @~5.0μS on monitor diode (~200kHz). Looked at both anode & cathode of control diode (no difference) and at just the anode of the monitor diode.	(N)	4/25/82		
		Traced oscillations to TP 20, the monitor diode constant current controller, at 60mV PP & 4.5μS. Also traced it to TP 21, the control diode constant current generator, at 150mV and 5.5μS period.	(N)	4/25/82		
		No oscillation present on TP 17	(N)	4/25/82		

SB 0295B DEC 77

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8370

SBRC

ASSEMBLY HISTORY RECORD WORK SHEET

SHEET 3 OF

PART NUMBER 51200	SERIAL OR LOT NUMBER 201	ASSEMBLY NAME RAD. COOLER	PART OF: 51200 AHR DATED 25 MARCH 1982 AHR SUPPLEMENT NO. 4

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
38038	22-13	MEASURE NOISE & D.C. OFFSET	NCD	4/26/82		
B		FOR BANDS 5 & 7; MEASURE NOISE				
		FROM B6 PREAMP & POST AMPS				
		a. WITH ALL CONTROLLERS AND				
		TELEMETRY OFF				
		b. WITH CFPA BACK CONTROLLER ON;	NCD	4/26/82		
		ALL OTHER ELECTRONICS				
		OFF				
		c. WITH CONTROLLERS OFF	NCD	4/26/82		
		BUT WITH TELEMETRY				
		(K6) ON.				
		d. WITH K6 ON AND CFPA	NCD	4/26/82		
		BACKUP CONTROLLER ON				
		e. WITH K6 ON AND THE	NCD	4/26/82		
		PRIMARY CONTROLLER ON				

SB 0295B DEC 77

SBRC

ASSEMBLY HISTORY RECORD WORK SHEET

SHEET 4 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF:
51200	201	RAD COOLER	AHR DATED AHR SUPPLEMENT NO. 4

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
38033 CONTINUED	-B	AND T3 (105 SET POINT)				
		SELECTED				
		RECORD DATA AS APPROPRIATE	NC	4/26/82		
		ON TEST SHEET 12 OF				
		16192.				
	22-17	Testing to FR 8370. Measured	M	4/26/82		
		TP 20 & 21 and saw ~200kHz				
		oscillation. Installed 0.1μF				
		C's on μ hooks from pin 6 to 2				
		of AR3 and same pins of AR4.				
		All oscillations stopped. This				
		shows that de-coupling the				
		cable to ground capacitance				
		isolates it from the loop and kills				
		the oscillation. 1000pF causes				
		oscillation at ~200kHz. Even 300pF				
		(either diode side) causes oscillation. 200pF doesn't.				

SB 0295B DEC 77

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SBRC	ASSEMBLY HISTORY RECORD WORK SHEET			SHEET 5 OF
PART NUMBER 5120000	SERIAL OR LOT NUMBER 201	ASSEMBLY NAME Rad Cooler		PART OF: AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
	22-17	Testing under FR 5 8370 & 8124:	(N)	4/27/82		
		Plugged SU942 board into testset				
		up decade R sim'g PRT & built in				
		load R sim'g Int Stage Heater to				
		determine if board delivers full				
		power. Measured $R_{built\ in}$ = 276.31				
		Measured V_{heater} = 78.9V. Measured				
		I_{htr} = 283.7. P = 22.24 W = I^2R				
		P = VI = 78.9(283.7) = 22.38W				
		(Cold Stage Heater power)				
		CONCLUSION: Board is supplying				
		full power to heater and is				
		apparently functioning OK.				

SB 0295B DEC 77

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ASSEMBLY HISTORY RECORD WORK SHEET, TM F1

SHEET OF

PART NUMBER 51200 ~~53286~~	SERIAL OR LOT NUMBER 20	ASSEMBLY NAME Module to Cooler Cable (Rad Cooler Harness)	PART OF: AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
		Looking into W3P40 with W3P4 mated to cooler.				
	22-17	NEG. TERMINAL OF "C" METER	(initials)	4/27/82	Mike Slonaker	
		ON PIN D-3 OF W3P40			Neal Cumment	
		ZERO READ = 28.5 pF				
		POS. TERMINAL TO PIN E-1, E-2				
		CONNECTED TOGETHER READ = 470.0 pF				
		28.5 pF				
		MONITOR DIODE C = 441.5 pF			C_{TOTAL} = 479+441 =	920 pF
		NEG TERMINAL OF "C" METER				
		ON PIN E-3, D-3 CONNECTED				
		TOGETHER. POS. TERMINAL TO				
		D-2, E-5 CONNECTED TOGETHER				
		ZERO READING = 28.6 pF				
		READING = 463.0 pF				
		− 28.5 pF				
		CONTROL DIODE C = 444.5 pF			C_{TOTAL} = 594+444 =	1038 pF
		Cold Stage Heater (A1 & B1) R = 274 Ω				
		(A2 & B2) R = 274 Ω				

SB 0295B DEC 77

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SBRC

ASSEMBLY HISTORY RECORD WORK SHEET , TM F1

SHEET OF

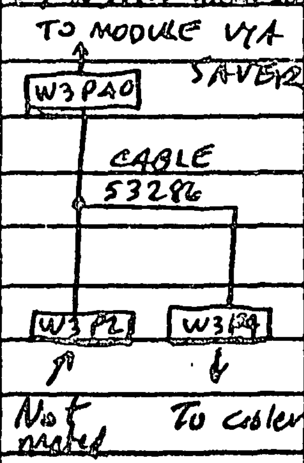
PART NUMBER 51200 ~~53286D~~

SERIAL OR LOT NUMBER 207

ASSEMBLY NAME Module to Cooler Cable, W3-3 (Rad Cooler Harness)

PART OF: AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
	22-17	Testing under FR's S 8118 & 8370	N	4/27/81	Mike Slonaker	
		Purpose: To measure the capacitance of			Neal Current	
		the lines from the 50942 (A4) board				
		to the temperature sensor diodes on				
		the CFPA. Also to measure resistance				
		of cold stage heater. Looking back into module w/o 50942			at W3P40 wear saver	
		− of meter to shield on pin D3				
		Zero reading 29.1 pF w/ leads				
		+ to E1 & E2 connected together C_t = 508				
		− 29				
		Monitor diode total C = 479 pF				
		− of meter to D3 & E3 tied together				
		Zero reading 29.1				
		+ lead to D2 & E1 together C_t = 625				
		− 29				
		Control ~~Monitor~~ diode total C = 594				
		Checked out W3-3 cable & mated it with a			wear saver on W3 P40 (module) end. Mated	
		cooler end (W3 P4)				



SB 0295B DEC 77

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APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET

Pin No. J1	to Pin No. J1	Resistance, Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By Oper.	Performed By Insp.	Performed By Date	Remarks
1	2	<2	0.58	SBS LN_2	CAH	[illegible]	4/22/82	
1	3	1,100	1,088					
3	4	<2	0.76					
5	6	<2	1,087	SBS LN_e				
5	7	1,100	1,086					
7	8	<2	0.24					
9	10	<2	0.30	R. C. DOOR				
9	11	1,100	1,087					
11	12	<2	0.36					
13	14	<2	0.27	MTG PLATFORM				
13	15	1,100	1,089					
15	16	<2	0.18					
17	18	<2	0.28	RESP. B. B.				
17	19	1,100	1,091					
19	20	<2	0.38		CAH	[illegible]	4/22/82	

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SIZE	CODE IDENT NO.	NUMBER
A	11323	16188

SCALE | REV B | SHEET 28

APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET (Continued)

Pin No. J1	to Pin No. J1	Resistance, Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By			Remarks
					Oper.	Insp.	Date	
21	22	<2	0.39	PREAMP RADIATOR	CAR	12	4/22/82	
21	23	1,100	1,089					
23	24	<2	0.37					
25	26	<2	0.39	RESP. B. B. SHUTTER				
25	27	1,100	1,093					
27	28	<2	0.39					
33	34	<2	0.29	COOLER AMBIENT HOUSING				
33	35	1,100	1,091					
35	36	<2	0.30					
37	GND	OPEN	OPEN	SPARE				
ALL	GND	OPEN	OPEN		CAR	[illegible]	4/22/82	

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SCALE | SIZE A | CODE IDENT NO. 11323 | NUMBER 16188 | REV B | SHEET 29

APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET (Continued)

Pin No. J2	to Pin No. J2	Resistance, Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By Oper.	Performed By Insp.	Performed By Date	Remarks
29	30	30	27.44		[illegible]	[illegible]	4/22/82	
29	31	1,150	OPEN	R. C. INT. STG.		1196	4/22/82	F/R
31	32	30	OPEN			1196	4/22/82	F/R
33	34	80	51.56					
33	35	1,180	1,139	R. C. COLD STG				
35	36	80	51.95					
37	GND	OPEN	OPEN	SHIELD				
ALL	GND	OPEN	OPEN		[illegible]	[illegible]	4/22/82	

SIZE A | CODE IDENT NO. 11323 | NUMBER 16188
SCALE | REV B | SHEET 31

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APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET (Continued)

Pin No. J3	to Pin No. J3	Resistance Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By Oper.	Insp.	Date	Remarks
1	2	110	109.16	CONTROL SENSOR-MTG PLT	csp	I 17	4/22/82	
2	3	<2	0.29					
4	5	110	109.16	CONTROL SENSOR-SBS				
5	6	<2	0.41					
7	8	110	108.56	CONTROL SENSOR-DOOR				
8	9	<2	0.35					
10	11	110	108.83	R. C. DOOR SPARE				
11	12	<2	0.37					
19	20	1,400	1,304	DRIVE RESP B. B.				
21	22	260	257.3	FP RESP B. B.				
23	24	28.4	28.36	SHUTTER RESP B. B.				
25	26	17.8	17.29	HEATER RESP B. B.				
27	28	480	483.1	MTG PLAT HTR	csp	I 172	4/22/82	

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SIZE A | CODE IDENT NO. 11323 | NUMBER 16188 | SCALE | REV B | SHEET 12

FORM NO. 0122-1-A (3-80) GHIELECTRONIC CLEARPRINT 1000H

APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET (Continued)

Pin No. J3	to Pin No. J3	Resistance, Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By Oper.	Insp.	Date	Remarks
29	32	24	23.97		dtn	172	9/22/82	
30	31	24	23.72	HTR LN_2 STG				
33	34	24	23.83	HTR LN_2 STG				
35	36	180	162.57	HTR R. C. DOOR				
37	GND	OPEN	~~OPEN~~ IN ERROR	SPARE				
ALL	GND	OPEN	OPEN		dtn	172	9/22/82	

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SIZE A
CODE IDENT NO. 11323
REV B
NUMBER 16188
SHEET 33

APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET (Continued)

Pin No. J6	to Pin No. J6	Resistance, Ohms, Nominal	Resistance, Ohms, Measured	Description	Performed By Oper.	Performed By Insp.	Performed By Date	Remarks
3	5	<2	0.34	BAND 5 RTN, 19 RET	ctp	[illegible]	4/22/82	
8	10	<2	0.35	BAND 7 RTN, 19 RET				
13	18	<2	0.42	BAND 6 RTN, CHAN 1-4 SHIELDS				
	22	<2	0.40					
	26	<2	0.32					
	30	<2	0.25		ctp	[illegible]	4/22/82	

SIZE	CODE IDENT NO.	NUMBER
A	11323	16188

SCALE	REV	SHEET
	B	34

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APPENDIX 10. ELECTRICAL CHECKOUT DATA SHEET (Continued)

CFPA/PREAMP CONNECTOR (J6)

Conductor (J6 Pin No.)	Nominal Current 1/	Measured Current	Conductor Description	Performed By			Remarks
				Oper.	Insp.	Date	
1	2.7 mA	1.5mA	Band 5 +19 V	CCL	I 180	08/23/82	
2	140 mA	125mA	Band 5 +15 V		I 180		
4	140 mA	125mA	Band 5 -15 V		I 180		
6	2.7 mA	1.3mA	Band 7 +19 V		I 180		
7	140 mA	125mA	Band 7 +15 V		I 180		
9	140 mA	125mA	Band 7 -15 V		I 180		
12	75 mA after stabilization	115 ~~150~~mA * CCL	Band 6 +15 V		I 180		
14	75 mA after stabilization	130 ~~150~~mA * CCL	Band 6 -15 V	CCL	I 180	08/23/82	

1/ Current in conductors with full power to CFPA/preamps. Deviations from nominal values shown are allowable per the discretion of the CFPA REA.

Band 6 output characteristics shall be verified according to procedures delineated by the CFPA REA prior to pumpdown/cooldown, acceptable room temperature output of Band 6 channels to be indicated by CFPA REA signature below.

CFPA REA [signature]

* BAND 6 DOES NOT STABILIZE WHEN HOT

SIZE	CODE IDENT NO.	NUMBER
A	11323	16188
SCALE	REV B	SHEET 35

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COOLER BAKE-OUT (45 ± 10 °C)

APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET

DATE TIME	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_2 STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS #5
22 APR 82	(torr)								START PUMP DOWN
									8:30 pm 4/22/82 BLACK BODY TEMP
2100	1.00 × 10⁻³⁰ atm	24.0	23.5	23.9	23.7	22.4	25.0	20.9	46.7
2130	0.1×10^{-4}	40.7	38.6	44.5	34.3	24.6	26.7	24.5	44.8
2200	80×10^{-5}	41.1	40.0	44.6	36.3	26.8	28.7	28.7	46.8
2230	6.5×10^{-5}	39.6	39.7	44.4	36.8	28.7	31.6	33.1	48.3
2300	2.9×10^{-5}	41.1	41.6	44.4	40.0	30.4	34.0	35.8	48.3
2330	2.4×10^{-5}	44.1	44.8	45.3	41.7	31.9	36.1	38.1	48.1
2400	WIDE VARIATIONS IN 10^{-5} RANGE	44.3	45.7	45.4	43.3	33.5	38.8	40.7	47.0
0030	1.7×10^{-5} STABLE	44.2	46.1	45.3	44.8	34.7	40.5	42.1	46.0
0100	1.4×10^{-5}	43.7	46.1	45.4	45.5	35.6	42.2	43.2	46.8
0130	1.2×10^{-5}	43.2	45.9	45.4	45.7	36.4	43.7	43.9	47.7
0200	1.1×10^{-5}	42.8	45.8	45.5	45.6	36.8	44.7	44.2	47.0
0230	10×10^{-5}	43.5	46.6	45.5	45.6	37.2	45.6	44.6	47.4
0300	9.4×10^{-6}	42.7	46.1	45.5	45.6	37.5	46.4	44.9	46.5
0330	8.8×10^{-6}	43.4	46.8	45.6	45.7	37.7	47.1	45.2	46.3
0400	8.0×10^{-6}	42.9	46.5	45.6	45.5	37.9	47.6	45.4	46.0
0430	7.5×10^{-6}	43.6	47.3	45.7	45.7	38.0	48.1	45.6	45.8
0500	7.1×10^{-6}	42.8	46.7	45.7	45.6	38.1	48.5	45.8	45.9
0530	6.5×10^{-6}	43.3	47.2	45.7	45.6	38.3	48.9	45.9	48.1
0600	6.1×10^{-6}	43.3	47.2	45.8	45.7	38.4	49.2	46.1	46.0
0630	5.8×10^{-6}	43.3	47.3	45.8	44.7	38.3	49.4	46.2	46.4
0700	5.5×10^{-6}	43.3	47.3	45.8	44.6	38.3	49.6	46.2	47.2
0730	5.2×10^{-6}	43.3	47.3	45.7	44.7	38.3	49.7	46.3	46.9
0800	5.0×10^{-6}	43.3	47.3	45.7	44.7	38.3	49.9	46.3	46.4

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4/23/82

APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET

DATE TIME	CHAMBER PRESSURE ~~mm HG~~ TORR	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_2 STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS #5 BlackBody
23 April 82 0830	4.8×10^{-6}	43.3	47.3	45.6	44.7	38.3	50.0	46.4	45.2
0900	4.4×10^{-6}	43.3	47.4	45.7	44.7	38.4	50.1	46.4	47.4 SHUT DOWN HRS.
0930	1.5×10^{-6}	39.0	42.8	45.3	41.0	38.2	50.1	46.4	43.0 LN_2 "ON" (BOTH STAGES)
1000	9.0×10^{-7}	-129.1	-194.5	+42.5	+37.0	+32.7	+41.9	+32.0	+39.5
1030	6.6×10^{-7}	-187.5	-194.1	32.1	30.0	24.2	21.8	13.2	35.5
1100	6.0×10^{-7}	-187.9	-193.3	26.7	26.9	21.3	12.9	-30.5	33.9
1130	5.5×10^{-7}	-188.5	-192.3	20.4	23.6	18.1	2.9	-47.1	32.1
1200	6.4×10^{-7}	-187.0	-194.8	+14.9	+20.9	+15.6	-5.3	-59.6	+30.6
1230	5.0×10^{-7}	-187.1	-194.3	+6.8	+17.2	+12.1	-17.7	-76.1	+28.2
1300	4.0×10^{-7}	-186.5	-195.1	+5.2	+14.8	+10.0	-25.8	-86.1	26.4
1330	3.8×10^{-7}	-186.8	-194.8	+3.6	+13.9	+9.1	-29.1	-90.0	+25.6
1400	3.7×10^{-7}	-186.6	-194.2	2.9	12.4	7.8	-34.1	-95.6	24.5
1430	3.6×10^{-7}	-186.2	-194.6	2.4	10.7	6.2	-40.3	-102.4	23.0
1500	3.5×10^{-7}	-185.8	-194.6	2.2	9.1	4.7	-46.3	-108.7	21.6
1530	3.4×10^{-7}	-185.7	-194.6	2.0	7.9	3.7	-50.8	-113.1	20.5
1600	3.4×10^{-7}	-185.4	-194.8	1.9	6.9	2.7	-54.9	-117.2	19.4
1630	3.2×10^{-7}	-185.2	-194.2	1.9	5.7	1.6	-59.5	-121.6	18.2
1700	3.1×10^{-7}	-185.1	-194.5	2.8	4.9	.9	-62.2	-124.2	17.5
1730	3.1×10^{-7}	-185.0	-194.5	1.8	3.8	-.1	-66.6	-128.2	16.4
1800	3.0×10^{-7}	-185.0	-194.5	1.8	+3.3	-.7	-69.1	-130.5	15.7
1830	5.0×10^{-7}	-185.0	-194.6	1.8	+5.1 ??	-1.0	-71.9	-133.0	14.9
1900	3.1×10^{-7}	-185.1	-194.4	2.8	+4.1	-1.4	-74.2	-135.1	14.4
1930	2.9×10^{-7}	-186.0	-194.3	1.9	2.2	-2.1	-77.0	-137.5	13.6
2000	2.9×10^{-7}	-185.8	-194.4	1.8	3.4	-2.6	-79.4	-139.6	13.0
2030	2.9×10^{-7}	-185.8	-194.4	1.9	3.2	-2.1	-82.6	-142.4	12.2

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4/23/82

APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET

DATE TIME	CHAMBER PRESSURE ~~mm HG~~ TORR	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_e STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS BLACK B.
2100	2.7×10^{-7}	-185.4	-194.3	1.9	2.9	-3.0	-84.0.	-143.6	+11.8
2130	2.5×10^{-7}	-185.2	-194.3	1.9	2.9	-3.1	-85.9	-145.2	11.4
2200	2.5×10^{-7}	-185.2	-193.9	1.8	2.8	-3.0	-88.4	-147.4	10.7
2230	2.5×10^{-7}	-185.4	-194.5	1.9	2.8	-2.9	-89.9	-148.6	10.4
2300	2.5×10^{-7}	-185.2	-194.4	1.9	3.1	-2.8	-91.4	-149.9	10.0
2330	2.5×10^{-7}	-185.0	-194.4	2.0	3.1	-2.7	-93.9	-152.0	9.5
2400	2.4×10^{-7}	-185.0	-194.5	2.1	2.2	-3.0	-94.4	-152.7	9.2
0030	2.4×10^{-7}	-185.2	-194.5	1.9	0.6	-4.9	-96.2	-154.0	8.9
0100	2.4×10^{-7}	-185.2	-194.4	2.9	-1.3	-5.6	-97.6	-155.2	8.5
0130	2.4×10^{-7}	-185.1	-194.5	2.9	-2.4	-6.3	-98.9	-156.3	8.2
0200	2.3×10^{-7}	-185.2	-194.4	2.9	-3.3	-7.0	-100.4	-157.4	7.8
0230	2.3×10^{-7}	-185.3	-194.2	2.9	0.0	-7.1	-101.4	-158.3	7.5
0300	2.3×10^{-7}	-185.3	-194.6	2.9	0.2	-7.2	-102.7	-159.4	7.1
0330	2.3×10^{-7}	-185.4	-194.5	2.9	0.2	-7.3	-103.9	-160.3	6.8
0400	2.3×10^{-7}	-185.3	-194.5	2.9	0.2	-7.4	-104.9	-161.2	6.5
0430	2.2×10^{-7}	-189.5	-194.5	2.9	0.2	-7.5	-105.9	-162.0	6.2
0500	2.2×10^{-7}	-189.8	-194.4	2.9	0.2	-7.7	-106.9	-162.8	5.9
0530	2.2×10^{-7}	-190.0	-194.3	2.9	0.2	-7.8	-107.8	-163.5	5.7
0600	2.2×10^{-7}	-190.4	-194.8	2.9	0.2	-7.9	-108.7	-164.2	5.5
0630	2.2×10^{-7}	-185.4	-194.8	3.0	0.2	-8.0	-109.6	-165.0	5.3
0700	2.2×10^{-7}	-185.0	-194.8	2.9	0.2	-8.1	-110.5	-165.7	5.1
0730	2.2×10^{-7}	-185.3	-194.8	2.9	0.1	-8.2	-111.1	-166.2	4.9
0800	2.2×10^{-7}	-185.8	-194.6	2.8	0.2	-8.4	-112.1	-167.0	4.6
0830	2.2×10^{-7}	-185.6	-194.3	2.8	0.2	~~-8.3~~ -8.5	-112.9	-167.6	4.4
0900	2.2×10^{-7}	-187.5	-194.5	2.8	0.2	-8.6	-113.5	-168.2	4.3

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APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET

DATE TIME	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_e STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS
0930	2.2×10^{-7} ~~-188.0~~	-188.0 ~~-194.6~~	-194.5 ~~2.5~~	2.5 ~~0.1~~	0.1	-8.6	-114.3	-168.8	4.1
1000	2.2×10^{-7}	-188.4	-194.5	2.4	0.1	-8.6	-114.8	-169.1	4.0
1030	2.3×10^{-7}	-188.5	-194.5	2.3	0.1	-8.7	-115.5	-169.7	3.9
1100	2.4×10^{-7}	-188.4	-194.5	2.2	0.1	-8.7	-116.1	-170.2	3.8
1130	2.3×10^{-7}	-188.4	-194.7	2.2	8.0	-8.0	-116.8	-170.7	
1200	2.2×10^{-7}	-188.2	-194.7	2.1	11.3	-6.9	-117.4	-171.2	
1230	2.2×10^{-7}	-186.5	-194.6	2.1	22.4	-4.9	-117.9	-171.6	
1300	3.6×10^{-7}	-180.2	-194.4	2.2	25.3	-3.1	-118.1	-171.8	
1330	1.9×10^{-7}	-185.4	-194.5	2.3	20.9	-2.4	-118.5		Turn on backup controller
1400	1.9×10^{-7}	-184.6	-194.5	2.4	8.5	-2.3	-119.1		
1430	1.8×10^{-7}	-183.6	-195.2	2.5	20.3	-2.4	-119.4		
1500	2.1×10^{-7}	-185.0	-195.2	2.5	26.3	-.9	-119.7		
1530	1.9×10^{-7}	-185.1	-194.9	2.5	26.5	-1.0	-120.1		
1600	1.9×10^{-7}	-184.9	-194.4	2.5	18.9	-0.9	-120.5		4-29-82 Tomporos
1630	2.4×10^{-7}	-185.0	-194.5	2.6	15.6	-0.4	-120.7		
1700	2.8×10^{-7}	-184.6	-194.6	2.3	7.7	-1.0	-121.0		
1730	2.7×10^{-7}	-184.6	-194.5	2.9	15.9	-1.3	-121.3		
1800	2.7×10^{-7}	-184.8	-194.4	2.7	19.0	1.3	-121.6		
1830	2×10^{-7}	-184.6	-194.6	2.4	13.4	1.2	-121.8	-170.9	
1900	2×10^{-7}	-184.8	-194.6	2.7	17.4	1.5	-122.1	-170.9	
1930	3×10^{-7}	-184.7	-195.6	2.5	19.2	1.2	-122.4	-171.3	
2000	2×10^{-7}	-184.7	-194.4	2.4	19.4	1.0	-122.6	-171.8	
2030	1.8×10^{-7}	-184.7	-194.4	2.4	19.6	.8	-122.8	-172.2	
2100	2×10^{-7}	-184.8	-194.5	2.4	19.7	.6	-123.0	-172.7	
2130	1.9×10^{-7}	-184.9	-194.5	2.4	19.5	.6	-123.2	-173.1	

APPENDIX 20. TM COOLER TV [illegible]T SYSTEM DATA SHEET

DATE TIME 4-24-82	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_e STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS B.B.
2200	2×10^{-7}	-186.8	-194.4	+2.4	19.5	-.5	-123.4	-173.4	
2230	2.5×10^{-7}	-187.0	-194.1	2.4	19.5	-.5	-123.6	-173.9	
2300	2×10^{-7}	-187.0	-194.4	2.4	19.5	-.5	-123.7	-174.2	
2330	2×10^{-7}	-187.0	-194.4	2.4	19.3	-.5	-123.9	-174.5	
4-25-82 2400	2.8×10^{-7}	-186.6	-194.7	2.4	19.4	-.5	-124.1	-174.8	4-25-82 BB 8.7
2430	2×10^{-7}	-187.0	-194.5	2.4	19.4	-0.5	-124.2	-175.1	changed LNe on pump 8.8
0100	1.9×10^{-7}	-186.8	-194.4	2.4	19.4	-0.5	-124.4	-175.4	8.0
0130	1.9×10^{-7}	-186.7	-194.2	2.4	19.5	-0.5	-124.5	-175.6	7.6
0200	DAYLIGHT SAVINGS TIME CHANGE								
0230									
0300	2.6×10^{-7}	-186.8	-194.4	2.4	19.4	-0.5	-124.7	-175.9	7.2
0330	2.6×10^{-7}	-187.1	-194.3	2.4	19.4	-0.5	-124.8	-176.2	6.9
0400	2.6×10^{-7}	-187.0	-194.4	2.4	19.4	-0.5	-134.9	-176.4	6.8
0430	2.7×10^{-7}	-187.0	-194.4	2.4	19.4	-0.5	-125.0	-176.6	6.7
0500	2.6×10^{-7}	-187.1	-194.4	2.4	19.4	-0.5	-125.2	-176.9	6.6
0530	2.7×10^{-7}	-187.1	-194.3	2.4	19.4	-0.5	-125.3	-177.0	6.5
0600	2.0×10^{-7}	-187.0	-194.0	2.4	19.4	-0.5	-125.4	-177.2	6.5
0630	2.8×10^{-7}	-185.4	-194.6	2.4	19.5	-0.5	-125.5	-177.5	6.4
0700	2.6×10^{-7}	-185.4	-194.6	2.4	19.4	-0.5	-125.6	-177.6	6.4
0730	2.5×10^{-7}	-185.6	-194.6	2.4	19.5	-0.5	-125.7	-177.8	6.4
0800	2.5×10^{-7}	-185.4	-194.6	2.5	19.4	-.5	-125.8	-178.0	4-25-82 TONY G[illegible] 6.4
0830	2.3×10^{-7}	-185.4	-194.4	2.4	19.7	-.5	-125.9	-178.2	6.4
0900	2.5×10^{-7}	-185.4	-194.4	2.4	19.7	-.5	-126.0	-178.3	6.4
0930	2.2×10^{-7}	-185.4	-194.4	2.5	19.7	-.5	-126.1	-178.5	6.4
1000	2.2×10^{-7}	-185.3	-194.4	2.3	19.7	-.5	-126.1	-178.6	6.4

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172

APPENDIX 20. TM COOLER TV [illegible]ST SYSTEM DATA SHEET

DATE TIME	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_2 STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS BB
4-25-82 1030	2.2×10^{-7}	-185.3	-194.4	+2.2	+19.7	-.4	-126.3	-178.7	4-25-82 6.4
1100	3×10^{-7}	-185.5	-194.4	2.1	19.6	-.4	-126.4	-178.6	6.4
1130	3×10^{-7}	-185.3	-194.3	2.5	17.9	-.2	-126.4	-178.5	6.4
1200	3.2×10^{-7}	-185.4	-194.4	2.3	19.4	-.1	-126.5	-178.5	+ ~~220.8~~
1230	3×10^{-7}	-185.5	-194.4	2.4	19.7	-.5	-126.5	-178.4	+ 219.8
1300	3×10^{-7}	-185.6	-194.5	2.5	20.0	-1.2	-126.6	-178.4	225.2
1330	4×10^{-8}	-185.6	-194.6	2.4	20.2	-1.7	-126.7	-178.4	221.8
1400	5×10^{-7}	-185.5	-194.0	2.3	20.2	-1.9	-126.7	-178.4	224.3
1430	3×10^{-7}	-185.4	-193.6	2.2	20.4	-1.8	-126.7	-178.5	222.8
1500	3×10^{-7}	-185.5	-194.4	2.2	20.3	-1.3	-126.8	-178.6	222.1
1530	3.5×10^{-7}	-181.9	-194.8	2.3	20.1	-.8	-126.8	-178.7	223.4
1600	3.3×10^{-7}	-187.7	-194.8	2.4	19.9	-.5	-126.8	-178.7	223.4
1630	3.4×10^{-7}	-188.0	-194.4	2.5	19.8	.2	-126.9	-178.6	221.7
1700	2.3×10^{-7}	-187.8	-194.4	-.4	13.9	-.1	-126.9	-178.7	CONTROL UNIT UNPOWERED TEMPORARILY (221.7)
1730	2.2×10^{-7}	-187.4	-194.4	2.6	18.9	-.4	-127.0	DISCONNECTED	222.1
1800	2.1×10^{-7}	-187.5	-194.5	2.6	19.2	-.3	-127.0		223.1
1830	2.2×10^{-7}	187.1	-194.5	2.6	19.4	.2	-127.0	TO 50842	222.4
1900	2.1×10^{-7}	187.0	-194.5	2.6	19.6	.8	-127.1	BOARD CONTROLLER	222.5
1930	2.2×10^{-7}	-186.7	-194.4	2.6	19.6	1.1	-127.1	(TEMP)	222.6
2000	2.3×10^{-7}	-186.6	-194.6	2.6	19.7	1.3	-127.1		222.4
2030	2.3×10^{-7}	-186.8	-194.4	2.5	19.1	1.3	127.2		223.1
2100	2.3×10^{-7}	-186.4	-194.4	2.4	19.2	1.4	127.2		222.1
2130	2.3×10^{-7}	-186.7	-194.4	2.4	18.4	1.3	127.2		222.5
2200	2.3×10^{-6}	-186.6	-194.5	2.3	18.3	1.2	127.2		222.8
2230	2.3×10^{-6}	-186.2	-194.4	2.3	18.3	1.2	127.2		223.3

APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET

DATE TIME	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_2 STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS B.B
2300	2.2×10^{-7}	-186.2	-194.0	2.3	18.3	1.2	-127.3		224.1
2330	2.3×10^{-7}	-186.1	-194.0	2.4	17.5	1.0	-127.3		223.5
2400	2.2×10^{-7}	-186.2	-194.3	2.4	17.3	1.0	-127.3		223.4
0030	2.2×10^{-7}	-186.3	-193.0	2.4	17.3	0.9	-127.3		224.0
0100	2.5×10^{-7}	-186.3	-194.8	2.4	17.4	0.8	-127.4		223.0
0130	2.5×10^{-7}	-186.1	-194.8	2.4	17.4	0.8	-127.4		223.7
0200	2.5×10^{-7}	-186.2	-194.8	2.4	17.4	0.7	-127.4		222.9
0230	2.5×10^{-7}	-186.1	-194.8	2.4	17.3	0.7	-127.4		223.8
0300	2.4×10^{-7}	-186.2	-194.6	2.4	17.4	0.7	-127.5		222.9
0330	2.4×10^{-7}	-186.5	-194.3	2.4	17.2	0.7	-127.5		224.2
0400	2.5×10^{-7}	-186.5	-194.4	2.5	17.3	0.7	-127.5		223.7
0430	2.5×10^{-7}	-190.1	-194.4	2.5	17.3	0.6	-127.5		223.6
0500	2.5×10^{-7}	-190.0	-194.4	2.5	17.4	0.6	-127.5		224.0
0530	2.5×10^{-7}	-190.1	-194.4	2.6	17.4	0.6	-127.5		224.3
0600	2.4×10^{-7}	-189.6	-194.4	2.6	17.3	0.6	-127.6		222.8
0630	2.4×10^{-7}	-190.1	-194.2	2.6	17.3	0.6	-127.6		222.9
0700	2.2×10^{-7}	-190.1	-194.7	2.6	17.4	0.6	-127.6		223.3
0730	2.2×10^{-7}	-189.7	-194.7	2.7	17.4	0.6	-127.6		223.0
0800	2.2×10^{-7}	190.0	-194.7	2.7	17.3	0.6	-127.6		223.2
0830	2.2×10^{-7}	190.1	-194.7	2.7	17.4	0.5	-127.6		223.6
0900	2.1×10^{-7}	189.6	-194.5	-1.9	10.0	0.1	-127.7		223.2 During noise measurement
0930	2.1×10^{-7}	190.0	-194.1	2.9	16.1	0.2	-127.7		224.3 THERMAL ELEC OFF
1000	2.2×10^{-7}	-189.7	-194.7	-2.8	8.2	-.5	-127.7	—	—
1030	2.2×10^{-7}	-189.9	-194.7	-2.4	5.9	-1.0	-127.8	—	—
1100	2.1×10^{-7}	-189.6	-194.7	-8.5	1.6	-2.5	-127.8	—	—

APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET

DATE TIME	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_e STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS
1130	2.9×10^{-7}	-190.0	-194.4	2.8	11.9	-3.2	-127.9	—	
1200	2.9×10^{-7}	-189.6	-194.4	2.4	16.2	-3.0	-127.9	—	
1230	3.0×10^{-7}	-189.7	-194.4	2.1	16.8	-2.7	-128.0	—	
1300	3.0×10^{-7}	-189.3	-194.3	2.0	16.7	-2.6	-128.1	—	
1330	2.2×10^{-7}	-189.5	-194.5	1.9	17.7	-2.5	-128.1	—	
1400	2.2×10^{-7}	-189.5	-194.4	1.9	18.2	-2.2	-~~118~~.0	—	SET UP OUT-GAS
1430	2.2×10^{-7}	-188.4	-194.4	1.9	18.3	-2.0	—	—	BEGIN WARM-UP
1500	2.1×10^{-7}	-188.3	-194.4	2.1	17.1	-2.1	—	—	
1530	2.1×10^{-7}	-188.3	-194.3	2.2	20.9	-1.9	-50.2		
1600	2.1×10^{-7}	-188.3	-194.1	2.3	21.9	-.9	-45.3		
1630	2.1×10^{-7}	-188.3	-193.7	2.3	21.9	-.9	-36.8		CHG
1700	2.1×10^{-7}	-188.4	-194.3	2.4	21.2	-.6	-21.3	.53611 V	
1730	2.9×10^{-7}	-188.2	-194.0	2.4	21.4	-.3	-4.4	.53579 V	
1800	3.1×10^{-6}	-188.0	-194.4	2.4	21.7	-.1	+.10	.53561 V	CHECK C.P.
1830	2.8×10^{-4}	-187.4	-194.6	2.3	22.8	+.1	+14.2	.53549 V	
1900	1.3×10^{-6}	-187.9	-193.7	2.2	21.8	+.3	+22.8	.53527 V	
1930	8.2×10^{-7}	-188.6	-192.5	2.1	21.8	+.5	+21.7	.53501 V	
2000	1.0×10^{-6}	-174.4	-191.5	+8.5	21.7	+.5	+21.7	.53486 V	
2030	1.1×10^{-6}	-166.9	-190.2	+8.6	21.8	.7	+28.5	.53477 V	
2100	9.0×10^{-7}	-162.5	-189.4	17.4	22.7	.8	+23.6	.53478 V	
2130	9.0×10^{-7}	-155.4	-187.8	17.8	23.2	1.2	+23.1	.53475 V	
2200	9.9×10^{-7}	-149.0	-186.2	19.8	23.1	1.5	+22.8	.53471 V	Turn on SBS heater
2230	9.7×10^{-7}	-87.9	-124.9	21.9	23.3	1.6	+22.2	.53340 V	
2300	1.3×10^{-4}	-23.9	-59.2	21.4	25.4	3.2	+23.9	.52148 V	
2330	5.2×10^{-6}	-15.2	-42.6	20.4	30.5	6.2	+29.4	.51065 V	

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APPENDIX 20. TM COOLER TV TEST SYSTEM DATA SHEET

DATE TIME	CHAMBER PRESSURE mm HG	SBS LN_2 STAGE TEMP °C (#1)	SBS LN_e STAGE TEMP °C (#2)	RC DOOR TEMP °C (#3)	RC MOUNT PLTFM TEMP °C (#4)	RC AMBIENT HOUSING TEMP °C (#6)	RC INT STAGE TEMP °C (#8)	RC COLD STAGE TEMP °C (#9)	REMARKS
2400	1.6×10^{-6}	-17.0	-40.6	+20.2	+24.5	+7.5	+22.9	.50695 V	
0030	1.1×10^{-6}	-17.9	-37.9	+20.5	+24.5	+8.1	+23.1	.50522 V	
0100	8.8×10^{-7}	-17.8	-35.0	+20.7	+24.7	+8.8	+24.2	.50385 V	
0130	7.5×10^{-7}	-17.4	-32.6	+20.9	+25.1	+9.4	+23.0	.50250 V	
0200	6.6×10^{-7}	-16.4	-29.8	+21.0	+25.9	+10.1	+22.2	.50110 V	
0230	6.2×10^{-7}	-15.8	-27.4	+21.1	+26.3	+10.9	+22.2	.49973 V	
0300	5.8×10^{-7}	-15.1	-25.1	+21.2	+26.7	+11.6	+22.7	.49850 V	
0330	5.6×10^{-7}	-14.3	-22.8	+21.2	+27.1	+12.2	+23.7	.49715 V	ORIGINAL PAGE IS OF POOR QUALITY
0400	1.3×10^{-5}	-13.5	-20.9	+21.3	+27.4	+12.4	+23.2	.49605 V	
0430	1.2×10^{-5}	-12.5	-18.8	+21.3	+27.8	+13.5	+22.5	.49480 V	
0500	1.1×10^{-5}	-11.7	-17.1	+21.4	+27.8	+14.0	+23.7	.49385 V	
0530	1.5×10^{-5}	-10.8	-15.3	+21.5	+27.8	+14.5	+22.3	.49265 V	
0600	10×10^{-6}	-9.7	-13.6	+21.6	+28.9	+15.0	+23.1	.49158 V	
0630	6.0×10^{-7}	-8.8	-11.9	+21.6	+30.5	+15.7	+23.6	.49063 V	
0700	5.6×10^{-7}	-7.8	-10.4	+21.6	+31.1	+16.5	+22.2	.48958 V	
0730	5.6×10^{-7}	-6.9	-8.9	+21.7	+31.4	+17.2	+23.4	.48866 V	
0800		+20.5	+15.3	+22.4	+31.3	+18.2	+22.2	.48858 V	DK switched SBS controller to bring up #1 + #2 temps
0830		23.1	22.4	21.8	26.5	21.0	+24.0	.46768 V	Shut down
0900		20.3	21.6	21.8	27.0	22.1	24.6	.46717 V	
0930									
1000									
1030									
1100									
1130									

TEST SHEET 12
SHEET 1 OF 3

ORIGINAL PAGE IS
OF POOR QUALITY

SIGNAL/NOISE

CFPA SERNO 201 BAND 5 PREAMP SERNO 201 DATE: APRIL 25 1982

BAND 5 POST AMP SERNO ~~POST AMP NOT USED~~ / J9 CONNECTOR

TI READING .96648 VOLTS= 95 °K

T2 READING .96770 VOLTS= 95.2 °K

TEST ENGINEER N. C. DAVISON, III

S/N too low to read signal on scope

BAND 5

500µV/div

CHANNEL	PREAMP OUTPUT SIGNAL	PREAMP OUTPUT NOISE	BROAD BAND NOISE (AC)	POST AMP OUTPUT @ ≈ 1KHz SIGNAL	POST AMP OUTPUT @ ≈ 1KHz NOISE	BROAD BAND NOISE	CALCULATIONS MAX $\leq 5.8 \times 10^{-12}$ NEP λ	CALCULATIONS MIN $\geq .8$ A/W Rλ
1			.40 V					
2			.38					
3			.50					
4			.40					
5			.42					
6			.42					
7			.43					
8			.45					
9		Oscillates 210.5 KHz	1.17	.52 V	WITH CONTROLLER OFF SCOPE = 500µV/div			
10		Popcorn 1.0mV max	.90	.39 V	WITH CFPA TEMP CONTROLLER TURNED OFF SCOPE = 1mV/div			
11			.42	.49 V	WITH CFPA TEMP CONTROLLER ON. SCOPE = 1mV/div			
12			.43					
13			.41					
14			.40					
15			.46					
16			.39					

I 172 4/26/82 I 172 F/R 8117

POST AMP GAIN=
APERTURE TO FILTER=
DETECTOR AREA=
H_0^{∞} =
BLACKBODY TO λ=
BLACKBODY TEMPERATURE=
DESIGN ENGINEER Bill Davison III

FEEDBACK RESISTOR=
NOISE CORRECTION FACTOR
BANDWIDTH=
APERTURE DIAMETER=
SCOPE GAIN=
Q.A. ENGINEER Preamp broadband noise only I 172 4/26/82

SIZE	CODE IDENT NO	NUMBER
A	11323	16192
SCALE	REV	SHEET

FORM NO. [illegible] DIETZGEN-POST CLEARPRINT 1000

ORIGINAL PAGE IS
OF POOR QUALITY

SIGNAL/NOISE

CFPA SERNO 201 BAND 6 PREAMP SERNO 101 DATE: APRIL 25, 198

BAND 6 POST AMP SERNO 201

T1 READING .96648 VOLTS= 95 °K

T2 READING .96770 VOLTS= 95.2 °K

TEST ENGINEER
N. C. DAVISON, III

BAND 6 200μV/div 5mV/div

CHANNEL	PREAMP OUTPUT			POST AMP OUTPUT			CALCULATIONS	
	SIGNAL*	NOISE	BROAD BAND NOISE	SIGNAL*	NOISE	BROAD BAND NOISE	MAX $\leq .93\times10^{-10}$ NEP λ	MIN ≥ 3200 V/W R λ
1	23.5mV ~~12mV~~		.52 V	440 mV		.34 V		
2	16.5mV		.49 V	430mV		.45 V		
3	24.0mV		.53 V	405mV		.34 ✓		
4	12 mV	N/A	.46 V	380 mV	N/A	.41 ✓		

* PEAK-TO-PEAK

POST AMP GAIN =
APERTURE TO FILTER =
DETECTOR AREA =
H_0^∞ =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =

PREAMP GAIN =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER =
SCOPE GAIN =

EQUIPMENT USED	MODEL	SERNO	CAL DUE DATE
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			

QA ENGINEER
Postamp & recap only (I 172) 4/—/—

DESIGN ENGINEER N. C. Davison III

SIZE	CODE IDENT NO	NUMBER
A	11323	16192
SCALE	REV	SHEET

FORM NO. [illegible] DIETZGEN-POST CLEARPRINT 1020

ORIGINAL PAGE IS
OF POOR QUALITY

SIGNAL/NOISE

CFPA SERNO 201 BAND 7 PREAMP SERNO 201 DATE: APRIL 25, 1982

BAND 7 POST AMP SERNO POST AMP NOT USED

T1 READING .96648 VOLTS= 95 °K

T2 READING .96770 VOLTS= 95.2 °K

TEST ENGINEER
N. C. DAVISON, III

Reading signal on scope:

BAND 7 @500µV/DIV 500µV/div

CHANNEL	PREAMP OUTPUT			POST AMP OUTPUT			CALCULATIONS	
			BROAD BAND NOISE	@ ≈ 1KHz		BROAD BAND NOISE	MAX ≤4.8x10⁻¹²W NEP λ	MIN ≥1.0 A/W Rλ
	SIGNAL	NOISE		SIGNAL	NOISE			
1	2.5 mV P-P		.47 V					
2	2.5		.44					
3	2.5		.45					
4	2.5		.41					
5	2.5		.43					
6	2.5		.38					
7	2.5		.72					
8	2.5		.40					
9	2.5		.42					
10	2.5		.41					
11	2.5		.42					
12	2.3		.43					
13	2.5		.46					
14	2.5		.47					
15	2.5		.41					
16	2.5 mV P-P		.41					

POST AMP GAIN =
APERTURE TO FILTER =
DETECTOR AREA =
H_0^{∞} =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =
DESIGN ENGINEER Keith C. Davison III

FEEDBACK RESISTOR =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER =
SCOPE GAIN =
QA ENGINEER Preamp output only I 172 4/26/82

SIZE	CODE IDENT NO	NUMBER
A	11323	16192
SCALE	REV D	SHEET

PER AHR 51200, Sup. 4, UNDER FR 58124.
(After Q10 & R136 were replaced on 50942)

TEST SHEET 12
SHEET 1 OF 3

SIGNAL/NOISE

CFPA SERNO 201 BAND 5 PREAMP SERNO 201 DATE: APRIL 25, 1984

BAND 5 POST AMP SERNO POST AMP NOT USED.

T1 READING .9665 VOLTS= 25 °K

T2 READING .96770 VOLTS= 95 °K

TEST ENGINEER N.C. DAVISON, III

BAND 5

500μV/div

D.C. OFFSET	CHANNEL	PREAMP OUTPUT			POST AMP OUTPUT			CALCULATIONS	
				BROAD BAND NOISE	@ ≈ 1KHz		BROAD BAND NOISE	MAX $\leq 5.8\times10^{-12}$ NEP λ	MIN $\geq .8$ A/W Rλ
		SIGNAL	NOISE		SIGNAL	NOISE			
-7.0mV	1			.40V					
-3.0	2			.38					
-2.0	3			.51					
+4.5	4			.40					
-3.5	5			.42					
-3.5	6			.41					
+1.5	7			.43					
-2.0	8			.41					
+1.5	9			.44					
+2.0	10			.64*					
-0.5	11			.41					
-1.5	12			.43					
-2.0	13			.41					
-1.5	14			.39					
-2.0	15			.46					
-1.5	16			.40					
mV									

POST AMP GAIN=
APERTURE TO FILTER=
DETECTOR AREA=
H_0^{∞} =
BLACKBODY TO λ=
BLACKBODY TEMPERATURE=
DESIGN ENGINEER [signature] II

FEEDBACK RESISTOR=
NOISE CORRECTION FACTOR
BANDWIDTH=
APERTURE DIAMETER=
SCOPE GAIN=
Q.A. ENGINEER [signature]

ORIGINAL PAGE IS OF POOR QUALITY

C-3

TITLE	SIZE	CODE IDENT NO	NUMBER
* POPCORN NOISE STILL PRESENT	A	11323	16192
	SCALE	REV	SHEET

PER AHR 51200, Sup 4, UNDER FR S 8124

(After Q10 & R136 were replaced on 50942)

SIGNAL/NOISE

CFPA SERNO 201 BAND 6 PREAMP SERNO 101 DATE: APRIL 25, 1981

BAND 6 POST AMP SERNO POST AMP NOT USED

T1 READING .9615 VOLTS= 95 °K

T2 READING .96770 VOLTS= 95 °K

TEST ENGINEER N. C. DAVISON, III

BAND 6

200 µV/div

CHANNEL	PREAMP OUTPUT			POST AMP OUTPUT			CALCULATIONS	
	SIGNAL	NOISE	BROAD BAND NOISE	SIGNAL	NOISE	BROAD BAND NOISE	MAX $\leq 93\times10^{-10}$ NEP λ	MIN ≥ 3200 V/W R λ
1			.53 V					
2			.50					
3			.53					
4			.46					

POST AMP GAIN =
APERTURE TO FILTER =
DETECTOR AREA =
H_0^{∞} =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =

PREAMP GAIN =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER =
SCOPE GAIN =

EQUIPMENT USED	MODEL	SERNO	CAL DUE DATE
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			

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ORIGINAL PAGE IS OF POOR QUALITY

QA ENGINEER [signature] 172

DESIGN ENGINEER [signature] III

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV E	SHEET

PER AHR 51200, Sup. 4, UNDER FRS8124

(After Q10 & R136 were replaced on 50942)

TEST SHEET 12
SHEET ~~0~~ 3 OF 3

SIGNAL/NOISE

CFPA SERNO 801 BAND ~~6~~ 7 PREAMP SERNO 201 DATE: APRIL 25, 19..

BAND ~~6~~ 7 POST AMP SERNO POST AMP NOT USED

T1 READING .9665 VOLTS= 95 °K

T2 READING .96770 VOLTS= 55 °K

TEST ENGINEER
N. C. Davison, III

BAND 5

SCOPE SCALE x500µV/div

D.C. OFFSET	CHANNEL	PREAMP OUTPUT SIGNAL	PREAMP OUTPUT NOISE	PREAMP OUTPUT BROAD BAND NOISE	POST AMP OUTPUT @ ≈ 1KHz SIGNAL	POST AMP OUTPUT @ ≈ 1KHz NOISE	POST AMP OUTPUT BROAD BAND NOISE	CALCULATIONS MAX $\leq 5.8\times10^{-12}$ NEP λ	CALCULATIONS MIN $\geq .8$ A/W Rλ
-3.5mV	1			.48 ✓					
+0.5	2			.44					
-4.0	3			.45					
-0.5	4			.41					
-2.0	5			.41					
-5.5	6			.39					
-2.5	7			.44					
+0.5	8			.40					
-2.5	9			.40					
0	10			.42					
-1.5	11			.41					
-0.5	12			.43					
-1.5	13			.47					
-0.5	14			.48					
-4.0	15			.41					
-4.0	16			.42 ✓					

POST AMP GAIN=
APERTURE TO FILTER=
DETECTOR AREA=
H_0 =
BLACKBODY TO λ=
BLACKBODY TEMPERATURE=
DESIGN ENGINEER N. C. Davison III

FEEDBACK RESISTOR=
NOISE CORRECTION FACTOR
BANDWIDTH=
APERTURE DIAMETER=
SCOPE GAIN=
Q.A. ENGINEER [signature]

I 172

TITLE	SIZE	CODE IDENT NO	NUMBER
ORIGINAL PAGE IS OF POOR QUALITY	A	11323	16192
	SCALE	REV	SHEET

PER AHR 51200 SUP. No. 4 SHEET 8 OF. 38037

APPENDIX 60. TEMPERATURE CONTROLLER OPERATION VERIFICATION

INITIAL CONDITIONS

From J2 Pin No.	To J2 Pin No.	Measured Resistance (Ohms)	Description
25	26		Compensation Loop
29	30		Cold Stage PRT
29	31		
31	32		
33	34		Int. Stage PRT
33	35		
35	36		

TELEMETRY

Item	Backup Controller *	Primary Controller
CFPA Control Diode, Volts		.96770
CFPA Monitor Diode, Volts		.96640
CFPA Control Tlmy, Volts		+ 2.617 VDC
CFPA Monitor Tlmy, Volts		+ 2.828 VDC
CS Cold Tlmy, Volts		Not applicable
CS Hot Tlmy, Volts		Not applicable
CS PRT (4-wire) Resistance, Ohms		270.1 Ω ⇒ 95.53K

* BACK UP CONTROLLER NOT USED AT 95K. NCD III

N.C. DAVISON, III
APRIL 24, 1982
10:51 a.m.

ORIGINAL PAGE IS OF POOR QUALITY

SIZE	CODE IDENT NO.	NUMBER
A	11323	16188
SCALE	REV A	SHEET 42

PER. OPERATION 38032

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APPENDIX 60. TEMPERATURE CONTROLLER OPERATION VERIFICATION

INITIAL CONDITIONS

From J2 Pin No.	To J2 Pin No.	Measured Resistance (Ohms)	Description
25	26	28.113	Compensation Loop
29	30	19.182	
29	31	OPEN.*	Cold Stage PRT
31	32	OPEN *	SEE WAIVER W149
33	34	28.758	
33	35	329.83	Int. Stage PRT
35	36	330.03	

TELEMETRY

Item	Backup Controller	Primary Controller
CFPA Control Diode, Volts		.94423
CFPA Monitor Diode, Volts		.94309
CFPA Control Tlmy, Volts		.650
CFPA Monitor Tlmy, Volts		.876
CS Cold Tlmy, Volts		Not applicable
CS Hot Tlmy, Volts		Not applicable
CS PRT (4-wire) Resistance, Ohms	103.1°K ⇐ 302.6 Ω	

N.C. Davison III 107
6:10 p.m.
APRIL 24, 1982

SIZE	CODE IDENT NO	NUMBER
A	11323	16188
SCALE	REV	SHEET 42

ORIGINAL PAGE IS OF POOR QUALITY

SIGNAL/NOISE

CFPA SERNO 201 BAND 5 PREAMP SERNO 201 DATE: 04-24-81

BAND 5 POST AMP SERNO 201

T1 READING .9452 VOLTS= 105 °K

T2 READING .9457 VOLTS= 105 °K

TEST ENGINEER C. R. Lone

BAND 5

10mV/div 500mV/div

D.C. OFFSET	CHANNEL	PREAMP OUTPUT SIGNAL	PREAMP OUTPUT NOISE	PREAMP OUTPUT BROAD BAND NOISE	POST AMP OUTPUT @ ≈ 1KHz SIGNAL	POST AMP OUTPUT @ ≈ 1KHz NOISE	POST AMP OUTPUT BROAD BAND NOISE	CALCULATIONS MAX ≤5.8x10^{-12} NEP λ	CALCULATIONS MIN ≥.8 A/W Rλ
-13mV	1		.46	~~.54~~					
-2mV	2		.44	~~.48~~					
-5mV	3		.55	~~.58~~					
+5mV	4		.45	~~.50~~					
-6mV	5		.47	~~.53~~					
-5mV	5mV 6		.47	~~.53~~					
0.0	0.0 7		.55	~~.40~~					
-10.0	8		.51	.56					
+2mV	9		** .59	** .63V					
+7mV	10		* .55	* .60V					
0.0	11		.50	.52V					
-5mV	12		.50	.53V					
-3mV	13		.47	.51V					
-5mV	14		.46	.49V					
-1mV	15		.51	.56V					
-5mV	16		.45	.49V					

POST AMP GAIN = Cooler OFF ON

APERTURE TO FILTER =

DETECTOR AREA = THERMO ELECTRIC

H_0^{∞} =

BLACKBODY TO λ =

BLACKBODY TEMPERATURE =

DESIGN ENGINEER [signature]

FEEDBACK RESISTOR =

NOISE CORRECTION FACTOR

BANDWIDTH =

APERTURE DIAMETER =

SCOPE GAIN =

Q.A. ENGINEER [signature] 172

* POPCORN NOISE

** * 1mV/div

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE		SHEET

ORIGINAL PAGE IS
OF POOR QUALITY

SIGNAL/NOISE

CFPA SERNO 201 BAND 6 PREAMP SERNO 101 DATE: 04-24-82

BAND 6 POST AMP SERNO 201

T1 READING .9430 VOLTS= 105.2°K

T2 READING .9442 VOLTS= 105.2°K

TEST ENGINEER C. L. Lane

BAND 6 2mV/div 500μV/div 100mV/div 5mV/div

CHANNEL	PREAMP OUTPUT SIGNAL	PREAMP OUTPUT NOISE	PREAMP OUTPUT BROAD BAND NOISE	POST AMP OUTPUT SIGNAL	POST AMP OUTPUT NOISE	POST AMP OUTPUT BROAD BAND NOISE	CALCULATIONS MAX $\leq .93\times10^{-10}$ NEP λ	CALCULATIONS MIN ≥ 3200 V/W R λ
1	17mV ✓		200mV ✓	300mV ✓		.32 V ✓		
2	16mV ✓		176mV ✓	280mV ✓		.40 V ✓		
3 (5mV/div)	16mV ✓		200mV ✓	290mV ✓		.32 V ✓		
4	10mV ✓		163mV ✓	250mV ✓		.37 V ✓		

POST AMP GAIN =
APERTURE TO FILTER =
DETECTOR AREA =
H_0^{∞} =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =

PREAMP GAIN =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER =
SCOPE GAIN =

EQUIPMENT USED	MODEL	SERNO	CAL DUE DATE
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			

QA ENGINEER R. L. Diel 172

DESIGN ENGINEER Will C. Davison III

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV E	SHEET

FORM NO. [illegible] DIETZGEN-POST CLEARPRINT 1020

TEST SHEET 12
SHEET 3 OF 3

ORIGINAL PAGE IS
OF POOR QUALITY

SIGNAL/NOISE

CFPA SERNO 201 BAND 7 PREAMP SERNO 201 DATE: 042482

BAND 7 POST AMP SERNO 201

T1 READING .9452 VOLTS= 105 °K

T2 READING .9457 VOLTS= 105.2 °K

TEST ENGINEER C. R. [illegible]

BAND 7

	CHANNEL	PREAMP OUTPUT 500nV/Hz			POST AMP OUTPUT			CALCULATIONS	
				BROAD BAND NOISE	@≈ 1KHz		BROAD BAND NOISE	MAX ≤4.8x10⁻¹² W NEP λ	MIN ≥1.0 A/W Rλ
		SIGNAL	NOISE		SIGNAL	NOISE			
+5mV	1			.56 V					
+3mV	2			.52 V					
+12mV	3			.52 V					
+8mV	4			.50 V					
+9mV	5			.51 V					
+[illegible]V 4mV	6			.46 V					
+5mV	7			.79 V					
0.0	8			.46 V					
+7mV	9			.50 V					
+2mV	10			.50 V					
+7mV	11			.51 V					
+5mV	12			.50 V					
+8mV	13			.53 V					
+8mV	14			.54 V					
+5mV	15			.47 V					
+5mV	16			.48 V					

THERMAL ELECTRIC CONTROLLER OFF

POST AMP GAIN =
APERTURE TO FILTER =
DETECTOR AREA =
H_0^{∞} =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =
DESIGN ENGINEER [signature]

FEEDBACK RESISTOR =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER =
SCOPE GAIN =
QA ENGINEER 107 4/24/82

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV D	SHEET

FORM NO. [illegible] DIETERICH-POST CLEARPRINT 1020

ORIGINAL PAGE IS OF POOR QUALITY

APPENDIX 60. TEMPERATURE CONTROLLER OPERATION VERIFICATION

INITIAL CONDITIONS

From J2 Pin No.	To J2 Pin No.	Measured Resistance (Ohms)	Description
25	26	28.113	Compensation Loop
29	30	19.182	INT. ~~Cold~~ Stage PRT *SEE ~~EE~~ WAVIER W149
29	31	OPEN *	
31	32	OPEN *	
33	34	28.768	COLD ~~Int~~. Stage PRT
33	35	329.83	
35	36	330.03	

TELEMETRY

Item	Backup * Controller	Primary * Controller
CFPA Control Diode, Volts	.9535 V	.9535 V
CFPA Monitor Diode, Volts	.9530 V	.9530 V
CFPA Control Tlmy, Volts	~~.9584~~ 1.485V	~~.9529~~ 1.485V
CFPA Monitor Tlmy, Volts	1.644V	1.644 V
CS Cold Tlmy, Volts	1.676 V	Not applicable
CS Hot Tlmy, Volts	1.676V	Not applicable
CS PRT (4-wire) Resistance, Ohms	295.72 Ω 101.45 - 101.55 K	295.72 Ω

* CONTROLLERS OFF

N.C. DAVISON, III
12:53 P.M. SATURDAY
APRIL 24, 1982

172

SIZE	CODE IDENT NO.	NUMBER
A	11323	16188
SCALE	REV B	SHEET 42

FORM NO. C122-1-A (5-69) DIETZGEN-POST CLEARPRINT 1000H

ORIGINAL PAGE IS OF POOR QUALITY

TEST SHEET 12
SHEET 1 OF 3
10:47 a.m.

SIGNAL/NOISE

CFPA SERNO 201 BAND 5 PREAMP SERNO 201 DATE: 4-26-82

BAND 5 POST AMP SERNO ~~[illegible]~~ POST AMP NOT USED

T1 READING .94699 VOLTS= 104 °K

TEST ENGINEER

T2 READING .94744 VOLTS= 103.9 °K

N. C. DAVISON, III

BAND 5

CHANNEL	PREAMP OUTPUT (5mV/div, EVERY THING OFF)		(BACKUP ONLY ON)	~~PRE~~ ~~POST~~ AMP OUTPUT (K6 ON BACKUP OFF)	(K6 ON BACK UP ON)	(K6 ON BACKUP OFF, T3 SELECTED)	CALCULATIONS	
	DC OFFSET ~~SIGNAL~~	W.B. NOISE	BROAD BAND NOISE	W.B. @ ≈ ~~SIGNAL~~ ~~NOISE~~	~~[illegible]~~ WB NOISE	BROAD BAND NOISE	MAX $\leq 5.8\times10^{-12}$ NEP λ	MIN $\geq .8$ A/W Rλ
1	-14mV	.46	.46	.46	.47	.47		
2	-2	.45	.45	.45	.45	.45		
3	-6	.56	.55	.55	.55	.56		
4	+5	.47	.46	.46	.46	.47		
5	-6	.47	.47	.49	.48	.50		
6	-6	.47	.49	.49	.49	.49		
7	-1	.50	.50	.53	.54	.54		
8	-10	.48	.48	.54	.54	.54		
9	+1	.50	.50	.57*	.57*	.58*		
10	+6	.38*	.39*	59 ~~.48~~*	58 ~~.48~~*	.58*		
11	-1	.47	.46	.46	.47	.47		
12	-6	.50	.50	.51	.51	.51		
13	-3	.47	.47	.47	.47	.48		
14	-6	.46	.46	.46	.47	.47		
15	-1	.52	.52	.52	.53	.53		
16	-6mV	.46	.46	.46	.46	.47		

V_D = .94621 AT CONCLUSION OF TEST

POST AMP GAIN=
APERTURE TO FILTER=
DETECTOR AREA=
H_0^{∞} =
BLACKBODY TO λ=
BLACKBODY TEMPERATURE=
DESIGN ENGINEER [signature] III

FEEDBACK RESISTOR=
NOISE CORRECTION FACTOR
BANDWIDTH=
APERTURE DIAMETER=
SCOPE GAIN=
Q.A. ENGINEER [signature] (1/12)

TITLE	SIZE	CODE IDENT NO	NUMBER
* 1mV/div	A	11323	16192
	SCALE	REV	SHEET

FORM NO. [illegible] DIETZGEN-POST CLEARPRINT 1020

ORIGINAL PAGE IS
OF POOR QUALITY

10:47 a.m.

SIGNAL/NOISE

CFPA SERNO 201 BAND 6 PREAMP SERNO 201 DATE: 4-26-82

BAND 6 POST AMP SERNO 101

T1 READING .94628 VOLTS= 104 °K

T2 READING .94639 VOLTS= 104.4 °K

TEST ENGINEER
N. C. DAVISON, III

BAND 6 — EVERY THING OFF / BACKUP ONLY ON / K6 ON B.U. OFF / K6 ON B.U. ON / K6 ON B.U. OFF PRI ON, T3 SELECTED

200µV/div

CHANNEL	PREAMP OUTPUT			POST AMP OUTPUT			CALCULATIONS	
	W.B. ~~SIGNAL~~ NOISE	W.B. NOISE	BROAD BAND NOISE	W.B. ~~SIGNAL~~ NOISE	W.B. NOISE	BROAD BAND NOISE	MAX $\leq 93 \times 10^{-10}$ NEP λ	MIN ≥ 3200 V/W R λ
1	.51 ✓	.51 ✓	.51 ✓	.51 ✓	.51 ✓			
2	.44	.44	.44	.44	.45			
3	.50	.50	.50	.50	.50			
4	.41 ✓	.41 ✓	.41 ✓	.41 ✓	.41 ✓			

V_B = .94645 AT CONCLUSION OF TEST.

POST AMP GAIN =
APERTURE TO FILTER =
DETECTOR AREA =
H_0^{∞} =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =

PREAMP GAIN =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER =
SCOPE GAIN =

EQUIPMENT USED MODEL SERNO CAL DUE DATE

1)
2)
3) SEE NEXT SHEET
4)
5)
6)
7)
8)

QA ENGINEER [signature]

(I/172)

DESIGN ENGINEER Willis C. Davison III

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV	SHEET

FORM NO. [illegible] DIETZGEN-POST CLEARPRINT 1020

ORIGINAL PAGE IS
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10:47 a.m.

SIGNAL/NOISE

CFPA SERNO 201 BAND 6 PREAMP SERNO 201 DATE: 4-26-8

BAND 6 POST AMP SERNO 101

T1 READING .94618 VOLTS= °K

T2 READING .94657 VOLTS= 104.3°K

TEST ENGINEER N. C. DAVISON, III

BAND 6 — EVERY THING OFF / BACK UP ONLY ON / K6 ON B.U. OFF / K6 ON BACK UP ON / K6 ON B.U. OFF PRI ON, T3 SELECTED

CHANNEL	PREAMP OUTPUT			POST AMP OUTPUT			CALCULATIONS	
	SIGNAL	NOISE	BROAD BAND NOISE	SIGNAL	NOISE	BROAD BAND NOISE	MAX $\leq .93 \times 10^{-10}$ NEP λ	MIN ≥ 3200 V/W R λ
1	0.81 V	.81 V	.81 V	.81 V	.81 V			
2	1.0 V	1.0 V	1.0 V	1.0 V	1.0 V			
3	.80 V	.80 V	.80 V	.80 V	.80 V			
4	.90 V	.91 V	.91 V	.91 V	.91 V			

POST AMP GAIN =
APERTURE TO FILTER =
DETECTOR AREA =
H_0^{∞} =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =

PREAMP GAIN =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER =
SCOPE GAIN =

EQUIPMENT USED	MODEL	SERNO	CAL DUE DATE
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			

QA ENGINEER [signature] I 172

DESIGN ENGINEER [signature] III

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV	SHEET

ORIGINAL PAGE IS OF POOR QUALITY

TEST SHEET 12
SHEET 3 OF 3
10:47 a.m.

SIGNAL/NOISE

CFPA SERNO 201 BAND 7 PREAMP SERNO 201 DATE: 4-26-82

BAND 7 POST AMP SERNO POST AMP NOT USED

T1 READING .94608 VOLTS= ____ °K

TEST ENGINEER

T2 READING .94644 VOLTS= ____ °K

N. C. DAVISON, III

BAND 7

CHANNEL	PREAMP OUTPUT: SIGNAL (DC OFFSET; EVERY THING OFF; 500µV/div)	PREAMP OUTPUT: NOISE (BROAD BAND; BACKUP ONLY ON; 500µV/div)	BROAD BAND NOISE (K6 ON BACKUP OFF; 500µV/div)	POST AMP OUTPUT: ~~SIGNAL~~ W.B. (K6 ON BACKUP ON; 500µV/div)	POST AMP OUTPUT: NOISE W.B. (K6 ON BACKUP OFF; T3 SELECTED)	BROAD BAND NOISE	CALCULATIONS: MAX $\leq 4.8\times10^{-12}$ W NEP λ	CALCULATIONS: MIN ≥ 1.0 A/W Rλ
1	-6 mV	.57	.56	.57	.57	.57		
2	-3	.53	.53	.53	.53	.53		
3	-14	.55	.55	.56	.55	.55		
4	-9	.51	.51	.51	.51	.51		
5	-10	.52	.52	.53	.53	.53		
6	-16	.48	.48	.47	.47	.47		
7	-6	.53	.53	.80	.80	.81		
8	0.0	.48	.47	.48	.48	.48		
9	-8	.51	.50	.52	.52	.52		
10	-2	.52	.50	.51	.51	.51		
11	-9	.51	.51	.52	.52	.52		
12	-6	.51	.51	.51	.51	.51		
13	-9	.54	.54	.54	.55	.55		
14	-9	.55	.55	.55	.55	.56		
15	-5	.49	.49	.49	.49	.49		
16	-4 mV	.49	.49	.49	.49	.49		

ALL COLUMNS 500µV/div

POST AMP GAIN =
APERTURE TO FILTER =
DETECTOR AREA =
H_0^{∞} =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =
DESIGN ENGINEER [signature] III

FEEDBACK RESISTOR =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER =
SCOPE GAIN =
QA ENGINEER [signature] 72

$V_D \doteq .9462$ AT CONCLUSION OF TEST

~~500µV/div~~

SIZE	CODE IDENT NO	NUMBER
A	11323	16192
SCALE	REV	SHEET

FORM NO. ... DIETZGEN-POST CLEARPRINT 1000

4

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Radiative Cooler

Performance Data

Part 4

Supplemental Data

Special Test F-008

ORIGINAL PAGE IS
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STR NO F-008

PAGE 1 OF 1

SPECIAL TEST REQUEST

TITLE Post Thermal Vac Bench Cooler Test ORIGINATOR D. Kuyper

INSTRUMENT/MODEL TM F1 Rad Cooler MAJOR TEST PHASE Acceptance

APPLICABLE DOC. 16192 APPROX. TEST TIME 1 Day

PURPOSE OF TEST: Verify CFPA performance after Thermal Vacuum Test (Ref. FR S8117).

TEST CONFIGURATION: As described on AHR 51200 Part III, Supplement No. 3.

TEST PROCEDURE: As described on AHR 51200 Part III, Supplement No. 3.

~~STGI~~ CEA MANAGER [signature] DATE: 4/20/82

SYST. ENG. MANAGER [signature] for J. Engel DATE: 4/20/82

PROD. ASSUR. MANAGER [signature] DATE: 4/20/82

THEMATIC MAPP
PF & F1 ONLY

G.B. Gritt
NASA R+QA

(USE CONTINUATION SHEETS IF REQUIRED)

SBRC

ASSEMBLY HISTORY RECORD SUPPLEMENT

PART NUMBER	SERIAL OR LOT NUMBER	DRAWING NO.	DRAWING REVISION	CFA SOURCE CODE	PREPARED BY
51200	003	51200	E	22-31	D. Dascomb

SUPPLEMENT NO. 3 TO PART III
AHR DATED 25 March 1982

ASSEMBLY NAME: COOLER ASSEMBLY, RADIATIVE

APPLICABLE EOs

RESP ENG APPROVAL: [signature] — QUALITY APPROVAL: [signature]
PRODUCTION APPROVAL: [signature] — PROJ ENG APPROVAL: [signature]
OTHER: [signature] — OTHER: AFQA [signature]

SUPPLEMENT RELEASE DATE 20 APR 82

PURPOSE OF SUPPLEMENT - INCORPORATES NEW ASSY DWG REVISION ☐ OR EOs ☐, REWORK ☐; OTHER ☒. EXPLAIN:
TO PROCESS SPECIAL TEST REQUEST NO. F-008 FOR ADDITIONAL BENCH COOLER TESTING.
(Ref. FR S8117)

NOTE TO PRODUCTION - UPON RECEIPT, ENTER SUPPLEMENT NO. AND RECEIPT DATE ON FRONT SHEET OF AHR. INITIAL THE ENTRY

NOTES:

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
		CAUTION: THIS ASSEMBLY IS STATIC SENSITIVE; PLEASE				
		REF. DRAWING NOTE 24.				
		QUALITY ASSURANCE SURVEILLANCE SHALL BE PERFORMED DUR-				
		ING TEST. NOTIFY Q.A. AND AFQA PRIOR TO STARTING TEST.				
		THIS SUPPLEMENT AHR IS TO BE PERFORMED AT OPERATION				
		38000 OF AHR 51200, S/N 003, PART III, DATED 25 MARCH				
		1982.				
		THIS SUPPLEMENT AHR SUPERSEDES OPERATION 38000 OF THE				
		ORIGINAL AHR 51200, S/N 003, PART III, DATED 25 MARCH				
		1982.				

SB..C

ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 3

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
		NOTE: THE RADIATIVE COOLER MUST BE PREPARED FOR TESTING IN				
		AN ULTRA-CLEAN, WHITE-GLOVE AREA UNDER A LAMINAR FLOW BENCH.				
		THE AREA DESIGNATION IS YELLOW. INSPECT, CLEAN AND HANDLE				
		PER SPEC 16174, REV A .				
		CAUTION: USE OF THREE PAIRS OF GLOVES IS PREFERRED FOR				
		ASSEMBLY/HANDLING. THE FIRST PAIR SHOULD BE COTTON; THE				
		SECOND SHOULD BE POLYETHYLENE; AND THE THIRD SHOULD BE NYLON				
		PER SPEC 16174, REV A . SINGLE-GLOVE HANDLING IS ACCEP-				
		TABLE WHEN THE SURFACES BEING TOUCHED ARE NOT THERMALLY				
		CRITICAL.				

SB..C

ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 3

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
38001	22-74	PREPARE FOR BENCH COOLER OPERATION AND CFPA ELECTRICAL TEST	MMW		4/21/82	
		AS FOLLOWS:				
		SET-UP THE RADIATIVE COOLER/PREAMP MODULE ASSEMBLY IN A CLASS				
		10,000 ENVIRONMENT WITH ITS OPTICAL AXIS APPROXIMATELY HORI-				
		ZONTAL. CONNECT CFPA TEMPERATURE READOUT AND BREAKOUT BOX				
		TO W3P4 (COOLER HEATER/SENSOR CABLE CONNECTOR).				
		NOTE: DIODE TEMPERATURE CALIBRATION MAY BE FOUND ON AHR				
		50956.				
38002	22-74	SET UP BENCH COOLER CONSOLE PER 16191, REV A PARA 3.4.1, USING	MMW		4/21/82	
		NITROGEN GAS CYLINDER.				

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SB..C

ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 3

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
38003	22-74	INSTALL THE BENCH TEST COOLER (BTC) IN THE RADIATIVE COOLER	mmw		4/21/82	
		PER 16191, REV A PARA 3.4.2.				
38004	51-41	Q.A. INSPECT ABOVE OPERATION.		[illegible]	4/21/82	
38005	22-74	OPERATE THE BTC PER 16191, REV A PARA 3.4.3.a, REGULATING BACK	mmw		4/21/82	
		PRESSURE TO OBTAIN 95K CFPA TEMPERATURE.				
38006	51-41	Q.A. WITNESS THE ABOVE TEST.		[illegible]	4/21/82	

SR 0205A DEC 77

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SBRC

ASSEMBLY HISTORY RECORD CONTINUATION SHEET

SHEET 5 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 3

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
38007	22-13	CONDUCT THE BLACKBODY ACCEPTANCE (CFPA TEMPERATURE<95K) BANDS	NCD		4/21/82	
		5, 6 AND 7, TEST PER 16192, REV B EO 4192A PARA 4.18 AND PARA 4.19. RECORD				
		DATA ON 16192, TEST SHEET 12, SHEETS 1, 2 AND 3, AND ATTACH				
		TO THIS AHR.				
38008	51-41	Q.A. WITNESS THE ABOVE TEST.		I 172	4/22/82	See Calculations
	AF	MCI			4/22/82	
38009	21-23	CFPA REA TO REVIEW TEST DATA FROM OPERATIONS ABOVE; TEST			4/23/82	
		SHEET 12, SHEETS 1, 2 & 3 OF SPEC 16192, REV E 4022-4136 4/18				
38010	51-41	PROJECT QUALITY ENGINEER TO REVIEW TEST DATA.		I 128	4/27/82	LESS CAL. ON DATA SHEETS 4-22-82

SR 0205A DEC 77

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SB C ASSEMBLY HISTORY RECORD CONTINUATION SHEET

SHEET 6 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
38011	22-74	SHUT DOWN BENCH TEST COOLER (BTC) PER 16191, REV A, PARA 3.4.5.a.	MML		4/21/82	
38012	22-51	DISCONNECT BTC VACUUM LINE, REMOVE CONNECTING MANIFOLD, REMOVE VACUUM SHROUD, AND REMOVE TEST COVER PER 16191, REV A PARA 3.4.5.b THROUGH e.	88		4/22/82	TEST COVER NOT REMOVED 88
		NOTE: DISCONNECT AND REMOVE FROM THE RADIATIVE COOLER ONLY, AND NOT FROM THE BTC CONSOLE, SINCE THE BTC MUST BE RECONNECTED AFTER THERMAL SHORTING SCREWS HAVE BEEN INSTALLED.				

SB 0205A DEC 73

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SB..C	ASSEMBLY HISTORY RECORD CONTINUATION SHEET			SHEET 7 OF 8
PART NUMBER 51200	SERIAL OR LOT NUMBER 003	ASSEMBLY NAME COOLER ASSEMBLY, RADIATIVE		CONTINUATION OF: AHR DATED AHR SUPPLEMENT NO. 3

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
38013	22-74	COMPLETE BENCH TEST SHUT DOWN PER PARA 3.4.5, SPEC 16191,	[signature]		4/22/82	
		REV A . TORQUE SHORTING SCREWS, ITEM 22, PER NOTE 5.				
38014	51-41	Q.A. WITNESS TORQUE OF 8 FILLISTER HEAD SCREWS IN ABOVE OPER-		[stamp] 180	4/22/82	V_{DIODE} AT R.T. = .47521 V
		ATION.				$\Delta V/\Delta T$ = .0023362 V/°C
						-8°C = .47521 + (.0023362)(8°C)
						= .4939 V (REF. FOR TEST OF NEXT LINE.)
38015	22-74	VERIFY THE PROPER THERMAL CONDUCTANCE OF THE CFPA/RADIATIVE	[signature]	[stamp] 180	4/22/82	
		COOLER THERMAL SHORT PER 16191, REV A PARA 3.4.5.g THROUGH m.				
38016	22-74	DISCONNECT BTC VACUUM LINE, REMOVE CONNECTING MANIFOLD AND	[signature]		4/22/82	
		REMOVE VACUUM SHROUD.				

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SBRC ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 3

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
38017	51-41	Q.A. REVIEW AHR SUPPLEMENT FOR COMPLETENESS. ROUTE TO PRO-		8 180	4/22/82	
		JECT QUALITY ENGINEER FILES.				
	AF	MCI		0719	4/22/82	
		PROCEED TO AHR SUPPLEMENT NO. 4, PART III, FOR CONTINUATION				
		OF SPECIAL TEST.				

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PER SUPPLEMENT 3 TO PART III PG 5 OP. 38007 TO AHR 51200

TEST SHEET 12
SHEET 1 OF 3

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SIGNAL/NOISE

CFPA SERNO 201 BAND 5 PREAMP SERNO 201 DATE: APRIL 21,

BAND 5 POST AMP SERNO 201

NOT POSSIBLE TO TAKE READING NC III

T1 READING N/A NC III VOLTS= <95 °K

T2 READING N/A NC III VOLTS= <95 °K

TEST ENGINEER
N.C. DAVISON, III

BAND 5 2mV/div 500µV/div B100mV/div x10mV/div

D.C. OFFSET	CHANNEL	PREAMP OUTPUT SIGNAL	PREAMP OUTPUT NOISE	PREAMP OUTPUT BROAD BAND NOISE	POST AMP OUTPUT @ ≈ 1KHz SIGNAL	POST AMP OUTPUT @ ≈ 1KHz NOISE	POST AMP OUTPUT BROAD BAND NOISE	CALCULATIONS MAX $\leq 5.8 \times 10^{-12}$ NEP λ	CALCULATIONS MIN $\geq .8$ A/W Rλ
-6mV	1	1.23V		.43 V	1.89V		.64V		
-1.5	2	1.28V		.40	2.01V		.54V		
0	3	1.18V		.54	1.85V		.70V		
+6.5	4	1.18V		.41	1.78V		.66V		
-2.0	5	1.19V		.43	1.86V		.59V		
-1.5	6	1.23V		.43	1.85V		.61V		
+3.5	7	1.22V		.49	1.89V		.72V		
+0.5	8	1.18V		.43	1.83V		.63V		
+3.0	9	1.12V		.46	1.85V		.69V		
0.0	10	1.10V		.62	1.82V		1.04V		
1.0	11	1.11V		.43	1.88V		.63V		
0	12	1.10V		.45	1.81V		.76V		
-1.0	13	1.12V		.42	1.84V		.68V		
+0.5	14	1.11V		.41	1.83V		.60V		
-0.5	15	1.24V		.48	1.95V	1	.62V		
0.0	16	1.13V		.41	1.79V	N/A	.65V		

POST AMP GAIN= N/A 1
APERTURE TO FILTER=
DETECTOR AREA=
H_0^{*} =
BLACKBODY TO λ=
BLACKBODY TEMPERATURE=
DESIGN ENGINEER N.C. Davison III

FEEDBACK RESISTOR=
NOISE CORRECTION FACTOR
BANDWIDTH=
APERTURE DIAMETER=
SCOPE GAIN=
Q.A. ENGINEER

Witness Test Less Calculations 4/21/82 107

TITLE
1 ENG. DATA ONLY. NOT REQUIRED BY 16192 ¶ 4.15 OR ¶ 4.19

SIZE	CODE IDENT NO	NUMBER
A	11323	16192

SCALE | REV. | SHEET

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SIGNAL/NOISE

CFPA SERNO 201 BAND 6 PREAMP SERNO 101 DATE: APRIL 21, 198?

BAND 6 POST AMP SERNO 201

T1 READING NOT POSSIBLE VOLTS= < 95 °K

T2 READING TO TAKE READING NCD III VOLTS= < 95 °K

TEST ENGINEER
N. C. DAVISON, III

BAND 6 5mV/div 20mV/div 50mV/div 2mV/div

CHANNEL	PREAMP OUTPUT			POST AMP OUTPUT			CALCULATIONS	
	SIGNAL	NOISE	BROAD BAND NOISE	SIGNAL	NOISE	BROAD BAND NOISE	MAX $\leq .93\times10^{-10}$ NEP λ	MIN $\geq$ 3200 V/W R λ
1	.67 V		.50 V	1.16 V		.77 V		
2	.49 V		.49 V	1.22 V		1.06 V		
3	.68 V		.50 V	1.17 V		.78 V		
4	.425 V		.44 V	1.05 V		.98		

N/A (1) N/A (1)

POST AMP GAIN =
APERTURE TO FILTER =
DETECTOR AREA =
H_0^{∞} =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =

PREAMP GAIN =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER =
SCOPE GAIN =

EQUIPMENT USED	MODEL	SERNO	CAL DUE DATE
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			

QA ENGINEER witness Test - less Calculations 4/21/82 107

DESIGN ENGINEER Will C Davison III

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV	SHEET

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SIGNAL/NOISE

CFPA SERNO 201 BAND 7 PREAMP SERNO 201 DATE: APRIL 21, 1982

BAND 7 POST AMP SERNO 201

T1 READING NOT POSSIBLE TO TAKE VOLTS= <95 °K

T2 READING READING NCA II VOLTS= <95 °K

TEST ENGINEER
N. C. DAVISON, III

BAND 7 10mV/div 500μV/div / 500mV/div 500mV/div

D.C. OFFSET	CHANNEL	PREAMP OUTPUT			POST AMP OUTPUT			CALCULATIONS	
				BROAD BAND NOISE	@ ≈ 1KHz		BROAD BAND NOISE	MAX $\leq 4.8 \times 10^{-12}$ W NEP λ	MIN ≥ 1.0 A/W Rλ
		SIGNAL	NOISE		SIGNAL	NOISE			
-2.5mV	1	1.32V		.48V	.78V		.62V		
+1.0	2	1.41		.48	.76		.66		
-3.0	3	1.36		.51	.70		.61		
+1.0	4	1.42		.45	.81		.70		
-1.0	5	1.32		.43	.74		.63		
-4.0	6	1.38		.42	.82		.80		
-1.5	7	1.33		.50	.75		.72		
+0.5	8	1.35		.48	.705		.79		
-2.0	9	1.38		.43	.85		.74		
0.0	10	1.33		.56	.82		.89		
-0.5	11	1.28		.44	.76		.70		
0.0	12	1.43		48	.765		.75		
-0.5	13	1.39		.51	.74		.58		
+0.5	14	1.37		.51	.71		.72		
-2.0	15	1.37		.43	.74	1	.60		
-3.5	16	1.46		.43	.8305	N/A	.66		

POST AMP GAIN = N/A 1 .835
APERTURE TO FILTER =
DETECTOR AREA =
H_0^{∞} =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =
DESIGN ENGINEER N. C. Davison III

FEEDBACK RESISTOR =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER =
SCOPE GAIN =
QA ENGINEER Witnessed Test less Calculations 4/21/82 107

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV D	SHEET

TEST SHEET I

D.C. OFFSET TEST

CFPA SERNO 201 BAND 5 DATE 04-09-8

T1 READING ______ VOLTS = ______ °K TEST ENGINEER

T2 READING .969 VOLTS = 94 °K [signature]

DRAIN CURRENT 3.19/1.87KΩ μa (100μa to 1000μa) DRAIN VOLTAGE 3.34 VOLTS DC (2.5 to 4.5 VDC)

CHANNEL	VOLTS .02 TO 1.8VDC SIGNAL	VOLTS .02 TO 1.8VDC REF	SIGNAL-REF (mV) ±10mV	~~COMMENTS:-~~ FEEDBACK TERMINAL VOLTAGE
1	.450	.450	0	.002
2	1.067	1.067	0	-.002
3	.280	.287	+7	.001
4	.524	.520	+4	.158
5	.533	.537	-4	.001
6	.378	.376	+2	.014
7	.716	.708	+8	.001
8	.320	.330	-10	.028
9	.234	.228	+6	0.00
10	.155	.151	+4	.528
11	.241	.235	+6	0.00
12	.535	.528	+7	.406
13	.874	.863	+11	0.00
14	.126	.126	0	.005
15	.132	.132	0	-0.001
16	.173	.171	+2	.003

DESIGN ENGINEER Keith A. Davison III

METERS USED MODEL SERNO CAL DUE DATE

1)

2)

3)

Walton 4-9-80

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV	SHEET

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Radiative Cooler

Performance Data

Part 5

Supplemental Assembly History Record Sheets

SBRC

ASSEMBLY HISTORY RECORD SUPPLEMENT

SHEET 1 OF 6

PART NUMBER	SERIAL OR LOT NUMBER	DRAWING NO.	DRAWING DIVISION	ETA SOURCE CODE	PREPARED BY	
51200	003	51200	E	22-31	D. Dascomb	SUPPLEMENT NO. 2 TO PART III AHR DATED 25 MARCH 82

ASSEMBLY NAME: COOLER ASSEMBLY, RADIATIVE

APPLICABLE EO: 4269A

PURPOSE OF SUPPLEMENT - INCORPORATES NEW ASSY DWG REVISION ☐ OR EOs ☒; REWORK ☐; OTHER ☒. EXPLAIN:

RESP ENG APPROVAL: D. [signature]

QUALITY APPROVAL: [signature]

PRODUCTION APPROVAL: [signature]

PROJ ENG APPROVAL:

OTHER:

OTHER: [signature]

SUPPLEMENT RELEASE DATE 4-17-82

NOTE TO PRODUCTION - UPON RECEIPT, ENTER SUPPLEMENT NO. AND RECEIPT DATE ON FRONT SHEET OF AHR. INITIAL THE ENTRY.

REVIEWED 4-26-82

NOTES: THE PURPOSE OF THIS SUPPLEMENT IS TO INVESTIGATE THE CAUSE OF FAILURE REPORT S8106. THIS EFFORT WILL FOLLOW STEPS OUTLINED IN T.M. MEMO 236-7921, REV. 1 AND E.O.4269A.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
		NOTE:				
		1) PLEASE REVIEW HANDLING AND CAUTION NOTES OUTLINED				
		ON ORIGINAL AHR 51200, S/N 003, PART III, DATED				
		25 MARCH 1982.				
		2) THIS SUPPLEMENT IS TO BE PERFORMED AFTER OPERATION				
		37900 OF AHR 51200, S/N 003, PART III, DATED				
		25 MARCH 1982.				

4/28/82

SB 0295C JAN 81

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SB[illegible] ASSEMBLY HISTORY RECORD C[illegible]TINUATION SHEET — SHEET 2 OF [illegible]

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 2

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
37930	22-74	SPOT BOND CABLE, PART OF ITEM 3, TO SENSOR BLOCK, PART OF				
		ITEM 10, AS SHOWN IN SECTION ** AND PER NOTE 7 OF E.O.4269A.				
		SPOT BOND PER SPEC SP80043, REV G.				
		CURE AT ROOM TEMPERATURE.	STARK		4/17/2	MIX NO. 5380
37935	51-41	Q.A. INSPECT BONDING IN ABOVE OPERATION. 4/16/82		172	4/17/82	
	AF	MCI DK			4/17/82	
37936		Conduct continuity check W3174 pin 13 to [illegible]			4/19/82	PIN 13 TO 14 OPEN
						RT 4/19/82 172
37940	22-74	INSTALL ITEM 4, COLD STAGE COVER ASSEMBLY, ONTO ITEM 10,			4/19/82	
		STRUCTURE ASSEMBLY, USING ITEM 31, SCREW, THREE PLACES PER				
		SHEET 2, VIEW F.				
		(CONTINUED ON NEXT PAGE).				

SB 0205A DEC 77

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 2

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
37940	CONT.	NOTE: CLOCK ITEM 4 SUCH THAT THE WINDOW APERTURE IS IN THE				
		SAME ASPECT AS THAT SHOWN FOR ITEM 11 ON SHEET 3, VIEW H-H.				
		TORQUE SCREWS IN ACCORDANCE WITH NOTE 5.	[illegible]		4/19/82	
37945	51-41	Q.A. WITNESS TORQUE IN ABOVE OPERATION.	[illegible]	172	4/19/82	
37946	22-74	ATTACH ITEM 4, COLD STAGE COVER ASSEMBLY, TO ITEM 6, COLD	[illegible]		4/19/82	
		STAGE HOUSING ASSEMBLY, USING ITEM 29, SCREW, TWELVE PLACES				
		AS SHOWN ON SHEET 2, SECTION C-C. TORQUE SCREWS IN ACCORD-				
		ANCE WITH NOTE 4.				
37947	51-41	Q.A. WITNESS TORQUE IN ABOVE OPERATION.	[illegible]	172	4/19/82	

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 2

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
37950	22-74	REINSTALL ITEM 7, INTERMEDIATE STAGE COVER ASSEMBLY, TO ITEM 10, STRUCTURE ASSEMBLY, USING ITEM 30, SCREW, TWELVE PLACES AS SHOWN ON SHEET 2, SECTION C-C. TORQUE SCREWS IN ACCORDANCE WITH NOTE 5.	[illegible]		4/19/82	
37955	51-41	Q.A. WITNESS TORQUE IN ABOVE OPERATION.	[illegible]	172	4/19/82	

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 2

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
39760	22-74	REATTACH EACH PLASTIC STRIP, ITEM 33, NINE PLACES, PER SBRC			4/19/82	
		SPEC 16181 REV A, PARA 3.3.3.2.b, NOTE 30, AS SHOWN IN VIEW A-A,				
		SHEET 2.				
37965	51-41	INSPECT EACH STRIP BONDING IN ABOVE OPERATION.		172	4/19/82	
37970	22-74	REMOVE BANDS 5, 6 AND 7 CONNECTORS FROM FIXTURE 75788 AND			4/19/82	
		REMOVE FIXTURE FROM ASSEMBLY.				
		CAUTION: STATIC PROTECTIVE CONNECTORS MUST BE ON BANDS 5				
		AND 7 CABLE CONNECTORS. GROUND THE PINS OF THE STATIC PRO-				
		TECTIVE CONNECTOR TO COOLER CHASSIS.				
37975	22-74	INSTALL ITEM 5, AMBIENT COVER, TO ITEM 10, STRUCTURE ASSEM-			4/19/82	
		BLY, USING FASTENER, ITEMS 18 AND 30, EIGHTEEN PLACES AS				
		SHOWN ON DRAWING, SHEET 2, SECTION C-C. TORQUE SCREWS IN				
		ACCORDANCE WITH DRAWING NOTE 5.				

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 2

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	PERFORMED BY INSP	PERFORMED BY DATE	REMARKS
37980	51-41	Q.A. WITNESS TORQUE IN ABOVE OPERATION.	[illegible]	I 172	4/19/82	
37985	51-41	Q.A. REVIEW THIS AHR FOR COMPLETENESS. ROUTE TO PROJECT QUALITY ENGINEER FILES.	[illegible]	I 172	4/19/82	
		RETURN TO OPERATION 38000 OF AHR 51200, PART III, S/N 003, DATED 25 MARCH 1982.				

SBRC

ASSEMBLY HISTORY RECORD SUPPLEMENT

SHEET 1 OF 3

PART NUMBER	SERIAL OR LOT NUMBER	DRAWING NO.	DRAWING REVISION	DATA SOURCE CODE	PREPARED BY	SUPPLEMENT NO. 1 TO AHR DATED 25 MARCH 82
51200	003	51200	E	22-31	D. Dascomb	

PART III

ASSEMBLY NAME: COOLER ASSEMBLY, RADIATIVE

PURPOSE OF SUPPLEMENT – INCORPORATES NEW ASSY DWG REVISION ☐ OR EOs☐; REWORK ☐; OTHER ☒. EXPLAIN:

APPLICABLE EOs

RESP ENG APPROVAL · QUALITY APPROVAL · PRODUCTION APPROVAL · PROJ ENG APPROVAL · OTHER · OTHER

SUPPLEMENT RELEASE DATE 2 APRIL 1982

NOTE TO PRODUCTION – UPON RECEIPT, ENTER SUPPLEMENT NO. AND RECEIPT DATE ON FRONT SHEET OF AHR. INITIAL THE ENTRY.

NOTES: TO FURTHER INVESTIGATE TROUBLE REPORT S 0114 BY ADDING AN ADDITIONAL DATA COLLECT FOR BAND 6.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
		NOTE:				
		1) PLEASE REVIEW HANDLING AND CAUTION NOTES OUTLINED ON				
		ORIGINAL AHR 51200, S/N 003, PART III, DATED				
		25 MARCH 1982.				
		2) THIS SUPPLEMENT IS TO BE PERFORMED AFTER OPERATIONS				
		34900 AND 35000 OF AHR 51200, S/N 003, PART III,				
		DATED 25 MARCH 1982.				

SB 0295C JAN 81

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SBRC	ASSEMBLY HISTORY RECORD CONTINUATION SHEET	SHEET 2 OF 3

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 1

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	PERFORMED BY INSP	PERFORMED BY DATE	REMARKS
34910	22-31	WHEN THE CFPA TEMPERATURE REACHES 105K, COLLECT DATA PER 16188, REV B, PARA 4.3.2 FOR BAND 6 PREAMPLIFIER CIRCUIT BALANCING.	[illegible]		04/01/82	
34920	22-31	WHEN THE CFPA TEMPERATURE REACHES 95K, COLLECT DATA PER 16188, REV B, PARA 4.3.2 FOR BAND 6 PREAMPLIFIER CIRCUIT BALANCING.	[illegible]		04/02/82	DATA COLLECTED AT 93
35000	51-11	SEE ORIGINAL AHR.	[illegible]	[illegible]	4/5/82	

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SHEET 3 OF .

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE	AHR DATED AHR SUPPLEMENT NO. 1

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
35010	22-31	WHEN THE CFPA TEMPERATURE REACHES 90K, COLLECT DATA PER	CA		04/05/82	
		16188, REV B, PARA 4.3.2 FOR BAND 6 PREAMPLIFIER CIRCUIT				
		BALANCING.				
		RETURN TO ORIGINAL AHR.				

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SBRC	ASSEMBLY HISTORY RECORD					SHEET 1 OF 28
PART NUMBER 51200	SERIAL OR LOT NUMBER 003	DRAWING NO. 51200	DRAWING REVISION E	RIA SOURCE CODE 22-31	PREPARED BY D. Dascomb	AHR RELEASE DATE PART III OF III 24 MAR 82
ASSEMBLY NAME COOLER ASSEMBLY RADIATIVE T.M.			APPLICABLE EOs 2188A 3922A 4201A 4216A 2162A	RESP ENG APPROVAL	QUALITY APPROVAL	AUTHORIZED AHR SUPPLEMENTS AND DATE OF RECEIPT BY PRODUCTION 1 2 3 4 5 6 7 8
PL NUMBER 1162	PROJECT NAME TM	QUALITY CODE 7 PRG		PRODUCTION APPROVAL	PROJ ENG APPROVAL	
				OTHER	OTHER AFQA	

NOTES THIS AHR IS TO PERFORM THERMAL VACUUM TESTING AND WILL SATISFY REQUIREMENTS OF DRAWING 51200, NOTE 9, "PROCESS FINAL ASSEMBLY PER SPEC 16188 (THERMAL) . . ."

WAIVER W-148 ON UPPER NO 31200
" W-149
" W-144

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
		THIS AHR IS PART III OF III PARTS. PART III IS FOR THERMAL				
		VACUUM TEST.				
		CAUTION: AFTER OPERATION 31400 THIS ASSEMBLY IS STATIC SENSI-				
		TIVE; PLEASE REF. DRAWING NOTE 24.				
		QUALITY ASSURANCE SURVEILLANCE SHALL BE PERFORMED DURING TEST.				
		NOTIFY Q.A. AND AFQA PRIOR TO STARTING TESTS.				

SRC ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
		THE PARAGRAPH CALLOUTS IN THIS DOCUMENT REFER TO SPEC 16188,				
		REV B , UNLESS OTHERWISE SPECIFIED.				
		NOTE: THE RADIATIVE COOLER MUST BE PREPARED FOR TESTING IN				
		AN ULTRA-CLEAN, WHITE-GLOVE AREA UNDER A LAMINAR FLOW BENCH.				
		THE AREA DESIGNATION IS YELLOW. INSPECT, CLEAN AND HANDLE				
		PER SPEC 16174, REV A .				
		CAUTION: USE OF THREE PAIRS OF GLOVES IS PREFERRED FOR				
		ASSEMBLY/HANDLING. THE FIRST PAIR SHOULD BE COTTON; THE SEC-				
		OND SHOULD BE POLYETHYLENE; AND THE THIRD SHOULD BE NYLON				
		PER SPEC 16174, REV A . SINGLE-GLOVE HANDLING IS ACCEP-				
		TABLE WHEN THE SURFACES BEING TOUCHED ARE NOT THERMALLY				
		CRITICAL.				

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	PERFORMED BY INSP	PERFORMED BY DATE	REMARKS
		APPLICABLE DOCUMENTS				
		DRAWINGS:				
		51200, REV E WITH E.O.'S 2188A, 3922A, 2162A, 4201A, 4216A				
		52532, REV D WITH E.O.'S 3174A, 4100A, 4192A [illegible] [illegible]				
		51310, REV B WITH E.O.'S 3970A, 2904A				
		SPECIFICATIONS:				
		16188, REV B				
		16174, REV A				
		16191, REV A				
		16192, REV E WITH E.O.'S 4088A, 4136A, 4138A, 4156A				
		16235, REV G WITH E.O.'S 2744A, 3863A				
		FIXTURES:				
		72660, REV B WITH E.O.'S 4182A, 4241A				
		77682, REV A E.O.2632A				
		76954, REV A				
		STANDARDS:				
		SP80113, REV C				

SB 0295A DEC 77

SBRC **ASSEMBLY HISTORY RECORD CONTINUATION SHEET**

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
30100	51-11	PERFORM PRELIMINARY CHECKOUT OF VACUUM CHAMBER IN ACCORDANCE WITH PARA 4.2.1.	CAR		3/25	USING SINGLE-FILAMENT ION GAUGE (VARIAN) FOR DURABILITY.
30200	22-74	ASSEMBLE THE DOOR SUPPORT ASSEMBLY PER PARA 4.2.2 AND DRAWING 76954, REV A, IN A CLASS 10,000 ENVIRONMENT.	T.L.C.		3/24	NOT NECESSARY, SINCE ALREADY INSTALLED IN SBS FOR PF COOLER TEST.
		CAUTION: DO NOT TOUCH SPECULAR DOOR SURFACES AT ALL.				
30300	22-74	WITH THE SBS IN A CLASS 10,000 ENVIRONMENT, INSTALL THE DOOR SUPPORT ASSEMBLY INTO THE SBS PER PARA 4.2.3 AND DRAWING 77682, REV A.	T.L.C.		3/24	NOT NECESSARY SEE OP 30200

SR 0205A DEC 77

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SBRC ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	PERFORMED BY INSP	PERFORMED BY DATE	REMARKS
30400	22-74	INSTALL THE SBS INTO THE VACUUM CHAMBER PER PARA 4.2.3.	[illegible]		3/25/82	
30500	22-74	INSTALL THE BLACKBODY ON THE MOUNTING PLATFORM AND INSTALL	T.T.C		3/25/82	
		BOTH ONTO THE SBS PER PARA 4.2.3 AND DRAWING 77682, REV A				
		[illegible] 172				
30600	51-11	CONNECT CABLE ASSEMBLY 72660-1 INSIDE CHAMBER PER PARA 4.2.3	T.T.C		3/25/82	
		AND DRAWINGS 72660, REV B , AND 72624, REV A .	[illegible]	172	3/25/82	
		NOTE: INSTALL CAPS ON CRYOGEN FEEDLINES AT THIS TIME.				
30700	51-11	SET UP AND CONNECT DIGITAL THERMOMETER AND TEMPERATURE CONT-	T.T.C		3/25/82	
		ROLLERS PER PARA 4.2.3.	[illegible]	172	3/25/82	

SB 0295A DEC 77

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SIRC	ASSEMBLY HISTORY RECORD CONTINUATION SHEET	SHEET 6 OF 20

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
30800	51-11	PERFORM SBS ELECTRICAL CHECK PER PARA 4.2.3.1. THIS INCLUDES	T.T.C		3/25/82	
		CHECK ON J1 AND J3 ONLY. ATTACH DATA SHEET TO THIS AHR.				
30900	51-11	VERIFY HEATER/SENSOR CIRCUIT OPERATION PER PARA 4.2.3.2,	T.T.C		3/25/82	
		PARA a, b AND c.				
31000	22-41	VERIFY OPERATION OF BLACKBODY SHUTTER AND CHOPPER PER PARA	T.T.C		3/25/82	
		4.2.3.2.d.				
31100	51-41	INSPECT ALL TEST INSTRUMENTATION FOR PROPER CALIBRATION STICKERS.			3/25/82	

SB 0295A DEC 77

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
		NOTE: PLEASE NOTIFY Q.A. OF IMPENDING BAKEOUT BEFORE PROCEED-	T.C.C		3/25/82	
		ING.				
31200	51-11	PERFORM PRE-TEST BAKEOUT OF SBS, MOUNTING PLATFORM, DOOR,	T.C.C		3/25/82	START 1500 HRS 3/25/82
		BLACKBODY AND INTERNAL CABLING PER PARA 4.2.4. USE APPENDIX	FOR C.A.R		3/27/82	END 0900 HRS 3/27/82
		20 DATA SHEET AND RECORD DATA EVERY 30 MINUTES.				42 HRS TOTAL - SHORTENED BY
						DEVIATION/WAIVER
						# W147 DUE TO
						~2x10⁻⁶ VAC LEVEL
						AFTER 40 HRS.
31300	51-41	Q.A. REVIEW DATA FROM ABOVE BAKEOUT.	RB	172	3/29/82	
31400	51-11	OPEN CHAMBER AND SET UP NITROGEN PURGE PER PARA 4.2.5.1.a &	T.C.C		3/29/82	
		b.	FOR C.A.R			

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SBRC ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
31500	22-74	REMOVE MOUNTING PLATFORM AND BLACKBODY TO A FLOW BENCH PER	[illegible]		3/27/82	
		PARA 4.2.5.1.C. PARTS MUST REMAIN IN A CLASS 10,000 ENVIRON-				
		MENT UNTIL REINSTALLED IN CHAMBER.				
		CAUTION: THE FOLLOWING OPERATIONS ARE FOR PREPARING THE				
		RADIATIVE COOLER FOR THERMAL VACUUM TESTING.				
		THIS ASSEMBLY IS STATIC SENSITIVE, PLEASE REFER TO DRAWING				
		NOTE 24 (HANDLE PER SP80113).				
31600	22-74	INSTALL INSTRUMENTATION TEST LEADS TO COLD STAGE, INTERMEDIATE	[illegible]		3/27/82	
	22-31	STAGE RADIATORS AND AMBIENT STAGE TO MONITOR STAGE-TO-STAGE				
		ELECTRICAL RESISTANCE PER PARA 4.3.2 AND REA DIRECTION.				
31700	22-74	INSTALL MOUNTING PLATFORM ON COOLER	[illegible]		3/27/82	
		ON A FLOW BENCH. K.C. 3/29/82 [illegible]				
31700	N/A	This operation number is not used.				
		TOP WIRE COMING OVER PREAMP FLANGE GOES TO COLD STAGE.				

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SBRC ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE, T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
31800	22-74	DOUBLE BAG THE COOLER/PREAMP ASSEMBLY AND TRANSPORT TO THE CHAMBER PER PARA 4.2.5.1.f.	Wiener		3/22/82	
31900	51-11 22-74	INSTALL THE COOLER/PREAMP/MOUNTING PLATFORM IN THE SBS PER 77682, REV A AND PARA 4.2.5.1.f.	Wiener		3/22/82	
32000	51-11	MATE INTERNAL TEST CABLING PER 77682, REV A, AND PARA 4.2.5.2.	Wiener		3/22/82	
			RB	172 172	3/27/82	F/R 58166
32100	51-11 22-74	VERIFY ELECTRICAL CABLING CONNECTIONS PER PARA 4.2.5.3 WITH THE AID OF 72660, REV B. (DO NOT LOG DATA IN APPENDIX 10 AT THIS TIME.)				

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
32200	51-11	MATE INTERNAL CABLING TO CHAMBER BULKHEAD CONNECTORS PER 72660, REV B, AND PARA 4.2.5.4. ATTACH RESISTANCE MONITORING LEADS FROM AMBIENT, INTERMEDIATE AND COLD STAGES TO INTERNAL BULKHEAD CONNECTOR.	CRL		03/27/82	
32300	51-11 22-74	PERFORM FINAL ELECTRICAL CHECKOUT AT THE BULKHEAD EXTERNAL PINS PER PARA 4.2.5.4. LOG DATA PER APPENDIX 10, AND ATTACH COPIES OF DATA SHEETS TO THIS AHR. SPEC 16188, REV B.	CRL		03/27/82	
32400	51-41	Q.A. WITNESS ABOVE ELECTRICAL CHECKOUT.	[illegible]	172	3/25/82	

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
32500	51-11	TEMPORARILY CLOSE CHAMBER PER PARA 4.2.5.4.	T.C.		3/27/82	
32600	51-11	CONNECT EXTERNAL CABLING PER PARA 4.2.5.5.	T.C.		3/27/82	
32700	22-31	VERIFY FINAL FUNCTIONAL INTEGRITY OF THE TEST SET UP PER	[illegible]			
	22-13	PARA 4.2.5.6. (REA, ELECTRICAL, Q.A. AND SYSTEMS TEST ENG-	MJB		3-27-82	
	22-41	INEERS).				
	51-41					
32800	51-11	CONNECT AND CHECK OUT CRYOGEN FEEDLINES PER PARA 4.2.6.	T.C.		3/27/82	

SR 0295A DEC 77

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SRC ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
32900	51-11	CLOSE CHAMBER AND INITIATE PUMPDOWN PER PARA 4.2.7.a.	T.L.C		3/27/82	2100 HRS START
33000	51-11	PERFORM "COLD SHOCK" TEST OF CRYOGEN FEEDLINES PER PARA 4.2.7.b.	T.L.C		3/27/82	OK
33100	51-11	ELEVATE TEST ARTICLES AND SBS TO BAKEOUT TEMPERATURE PER PARA 4.2.7.c AND d.	T.L.C		3/27/82	
33200	22-31	VERIFY 48 HOUR BAKEOUT PER PARA 4.2.7.~~f~~ e, WITH CHAMBER PRESS-	T.L.C		3/29/82	
	51-41	URE NO GREATER THAN 2 X 10^{-5} mm Hg PRIOR TO PROCEEDING.			3/29/82	

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SBRC ASSEMBLY HISTORY RECORD CONTINUATION SHEET SHEET 13 OF 28

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
33300	51-11	PROCEED WITH PRE-BALANCE COOLDOWN PER PARA 4.2.8.	T.T.C	53	3-29-82	2110 HRS
33400	22-13	VERIFY INITIAL CONDITIONS FOR BACKUP TEMPERATURE CONTROLLER CHECKOUT PER PARA 4.3.1.1.	MJS		3-30-82	OP 33400, 33500, 33600 AND (OPTIONAL) 33700, 33800 TO BE PERFORMED FOLLOWING OP 33900. T.C. 3/30/82
33500	22-13	VERIFY BACKUP CONTROLLER OPERATION PER PARA 4.3.1.2.	MJS		3-30-82	
33600	22-13	VERIFY PRIMARY CONTROLLER OPERATION PER PARA 4.3.1.3.	MJS		3-30-82	
33700	22-13	(OPTIONAL) REMOVE PWB A4 PER PARA 4.3.1.4.	~~C.B.~~		~~3/30/82~~	
			OPERATION MOVED - OPERATION 33800			NOW FOLLOWS SEE COMMENTS SHEET 4

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SMC ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
33800	22-13	(OPTIONAL) REINSTALL PWB A4 PER PARA 4.3.1.4.	~~NOT NECESSARY~~			4/2/82 - T.T.C
		NOTE: COOLDOWN TO 95°K MAY PROCEED FROM 105°K, EVEN THOUGH	OPERATION OPERATION		MOVED 35800	TO FOLLOWING
		THE 50942 BOARD HAS BEEN REMOVED FOR SET POINT ADJUSTMENT.				T.T.C 4/6/82
33900	22-13	COLLECT DATA PER PARA 4.3.2 AND SPEC 16192, REV E FOR BAND	MJS		3-30-82	FRS8106
	22-31	6 PREAMPLIFIER CIRCUIT BALANCING.				
		OPERATIONS 34000 THROUGH 34700 MAY BE WAIVED IN THE EVENT				
		THAT DATA TAKEN DURING THIS OPERATION INDICATE THAT THE BAND				
		6 PREAMP CIRCUITRY IS BALANCED PER 16192. IN THIS EVENT,				
		THE PREAMP REA SHALL WAIVE OPERATIONS 34000 THROUGH 34700				
		BY SIGNING BELOW AND THE PROCEDURE MOVES FROM OPERATION				
		33900 TO OPERATION 34800.				
		WAIVER BY PREAMP REA ________				
		COOLER REA APPROVAL ________				
		IF THE ABOVE WAIVER IS NOT EXERCISED, CONTINUE WITH NEXT OPER.				

SB 0295A DEC 77

ORIGINAL PAGE IS OF POOR QUALITY

[SBRC]	ASSEMBLY HISTORY RECORD CONTINUATION SHEET						SHEET 15 OF 26

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
34000	51-11	PROCEED WITH WARMUP PER PARA 4.4, TAKING CARE TO KEEP THE	T.T.C		3/31/82	
	51-41	COOLER WARMER THAN THE SBS.				
		NOTE: Q.A. TO BE NOTIFIED OF IMPENDING OPERATION. DO NOT		172	3/31/82	
		PROCEED TO NEXT OPERATION UNLESS Q.A. IS PRESENT.				
		Q.A. 172 3/31/82				
34100	22-74	REMOVE THE COOLER/PREAMP ASSEMBLY TO A FLOW BENCH PER PARA	T.T.C		4/1/82	
	51-11	4.5.				
		SEE COMMENT SHEETS. OPERATING UNDER				
		TROUBLE REPORT S8114 T.T.C 4/1/82 172 4/1/82				

SB 0295A DEC 77

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[SBRC] ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
34200	22-74	AFTER THE BAND 6 PREAMP HAS BEEN BALANCED PER 16192, REV	CML		04/02/82	
	51-11	REPLACE THE BAND 6 PREAMP TEST SELECTS IN THE COOLER PREAMP ASSEMBLY. THIS OPERATION IS TO TAKE PLACE ON A FLOW BENCH, PER PARA 4.6.a. REFER TO AHRS 50980/50984 FOR INSTALLATION OF THESE PERMANENT COMPONENTS.		172	4/2/82	
34300	22-74	REINSTALL COOLER/PREAMPS IN THE VACUUM CHAMBER, PER 77682, REV A, AND PARA 4.6.b & c. Eo 2632 A			4/2/82	
34400	51-11	RECONNECT APPROPRIATE ELECTRICAL CONNECTORS PER PARA 4.2.5.2.			4/2/82	
	51-41	Q.A. WITNESS.		172	4/2/82	
34500	51-41	REPEAT FINAL ELECTRICAL CHECK PER PARA 4.2.5.4. LOG DATA PER APPENDIX 10, AND ATTACH COPIES OF DATA SHEETS TO THIS AHR.	CRL		04/02/82	
	51-11			172	4/2/82	Q.A. WITNESS

SB 0295A DEC 77

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SBRC ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
34600	51-11	REPEAT PUMPDOWN AND BAKEOUT PROCEDURE OUTLINED IN PARA 4.2.7,	DAR		4/2/82	
		WITH THE BAKEOUT PERIOD BEING TWELVE HOURS RATHER THAN 48				
		HOURS, PER PARA 4.6.f.				
34700	51-11	REPEAT THE SBS COOLDOWN PROCEDURE OUTLINED IN PARA 4.2.8.	F.I.C		4/3/82	
34800	51-11	SET UP BOUNDARY CONDITIONS FOR TEST PHASE 5 PER PARA 4.7.2.	F.I.C		4/5/82	
		RECORD DATA IN APPENDICES 20 AND 40.				
34900	51-11	APPLY SIMULATED ENVIRONMENTAL HEAT LOADS TO COOLER INTERMED-	F.I.C		4/5/82	
		IATE STAGE PER PARA 4.7.3.				

SB 0295A DEC 77

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SBRC	ASSEMBLY HISTORY RECORD CONTINUATION SHEET	SHEET 18 OF 20

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
35000	51-11	WHEN THE COOLER COLD STAGE TEMPERATURE FALLS BELOW 95K, SUB-	FFC		4/5/82	
		STITUTE NEON FOR NITROGEN IN THE SBS INNER STAGE PER PARA				
		4.7.4. NOTE CAUTION.				
35100	51-11	MAINTAIN BOUNDARY CONDITIONS PER PARA 4.7.2, 4.7.5 AND 4.7.6	TTC	1172	4/5/82	SEE F 8117
	22-31	UNTIL A CFPA STEADY STATE TEMPERATURE CONDITION HAS BEEN				84.95K TTC
		ACHIEVED PER PARA 4.7.7. CONDUCT FUNCTIONAL TEST OF BANDS 5				
		AND 7 PER 16192, REV E, PARA 4.2.3. THIS TEST SHALL BE				
		AT A TEMPERATURE OF 87K OR LESS.				85K TTC
		E				
		NOTE: IF THE CFPA TEMPERATURE ACHIEVED UNDER THIS OPERATION				
		IS LESS THAN 87K, OPERATIONS 35200 THROUGH 35700 MAY BE				
		WAIVED BY THE COOLER REA SIGNING BELOW.				
		WAIVER BY COOLER REA — R.T. Cally for Don Kuypers 4/6/82 172				

SB 0295A DEC 77

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S.RC	ASSEMBLY HISTORY RECORD CONTINUATION SHEET	SHEET 15 OF 28

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
35100	CONT.	IF OPERATIONS 35200 THROUGH 35700 HAVE BEEN WAIVED BY THE				WAIVED
		ABOVE SIGNATURE, CONTINUE WITH OPERATION 35800. IF THE ABOVE				TTC 4-5-84
		WAIVER HAS NOT BEEN EXERCISED, PROCEED AS FOLLOWS:				172
35200	51-11	PERFORM THE COOLER DOOR EMITTANCE TEST PER THE INSTRUCTIONS				WAIVED PER
		OF PARA 4.8. CONTINUE TO RECORD DATA IN APPENDICES 20 AND 40				OP 35100
						T.T.C 4-5-84 172
35300	22-31	VERIFY STEADY STATE CONDITION FOR THE COOLER DOOR EMITTANCE				WAIVED PER
		TEST PER PARA 4.8.d.				OP 35100
						T.T.C 4-5-84 172
35400	51-11	PERFORM THE SBS REFLECTANCE TEST PER THE INSTRUCTIONS OF PARA				WAIVED PER
		4.9, RECORDING DATA IN APPENDICES 20 AND 40.				OP 35100
						T.T.C 4-5-84 172

SB 0295A DEC 77

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
35500	22-31	VERIFY STEADY STATE CONDITION FOR THE SBS REFLECTANCE TEST PER PARA 4.9.d.				WAIVED PER OP 35100 T.T.C 8-3-82
35600	51-11	PERFORM TEST PHASE 8, THE SBS-REFLECTANCE-COMPENSATED LOW TEMPERATURE ACHIEVABLE TEST, PER THE INSTRUCTIONS OF PARA 4.10.				WAIVED PER OP 35100 T.T.C 8-3-82
35700	22-31	VERIFY STEADY STATE CONDITION FOR TEST PHASE 8 PER PARA 4.10.				WAIVED PER OP 35100 T.T.C 8-3-82
35800	22-13	SET UP INITIAL CONDITIONS FOR PRIMARY CONTROLLER TESTS PER PARA 4.11.1.1. RECORD DATA IN APPENDIX 20.	T.T.C		4/6/82 0430	

SB 0295A DEC 77

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SBRC	ASSEMBLY HISTORY RECORD CONTINUATION SHEET			SHEET 21 OF 28
PART NUMBER 51200	SERIAL OR LOT NUMBER 003	ASSEMBLY NAME COOLER ASSEMBLY RADIATIVE T.H.		CONTINUATION OF: AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
35900	22-13	ESTABLISH CONTROL AT THE 90K SET POINT PER PARA 4.11.1.2.a -	T.T.C		9/6/82	
		c.				
36000	22-13	PERFORM PRIMARY CONTROLLER TESTS AT THE 90K SET POINT PER	T.T.C		9/6 - 9/9/82	
		PARA 4.11.1.2.d-g, RECORDING DATA IN APPENDIX 30.				
36100	22-13	COLLECT BAND 6 RESPONSIVITY DATA AT 90K PER 16192, REV E.	CML		09/09/82	
	22-41					
	22-31					

SB 0295A DEC 77

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
36100	CONT.	NOTE: COLLECTION OF BAND 6 RESPONSIVITY DATA AT 90K MAY BE				
		WAIVED BY MUTUAL AGREEMENT OF THE COOLER REA AND SYSTEMS ENG-				
		INEERING. SUCH WAIVER TO BE AUTHORIZED BY THE SIGNATURES				
		BELOW.				
		SYSTEMS ENGINEERING__________				
		COOLER REA__________				
36200	22-13	PERFORM PRIMARY CONTROLLER TESTS AT THE 95K SET POINT PER	T.L.C		4/7/82	
		PARA 4.11.2, RECORDING DATA PER APPENDIX 30.				
36300	22-13	COLLECT BAND 6 RESPONSIVITY DATA AT 95K PER 16192, REV E	T.T.C for		4/7/82	
	22-41		A.J.S			

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
36300	CONT.	NOTE: COLLECTION OF BAND 6 RESPONSIVITY DATA AT 95K MAY BE				
		WAIVED BY MUTUAL CONSENT OF THE COOLER REA AND SYSTEMS ENGIN-				
		EERING, AS INDICATED BY THE WAIVER SIGNATURES BELOW:				
		SYSTEMS ENGINEERING_______ _______				
		COOLER REA_______________				
36400	22-13	PERFORM BACKUP CONTROLLER TESTS PER PARA 4.11.3, RECORDING	T.T.C		4/7-8/82	
		DATA PER APPENDIX 30.				
36500	51-11	SUBSTITUTE NITROGEN FOR NEON IN THE INNER SBS STAGE PER THE	T.T.C		4/8/82	
		INSTRUCTIONS OF PARA 4.11.4.1.				

SB 0295A DEC 77

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S RC — ASSEMBLY HISTORY RECORD CONTINUATION SHEET — SHEET 24 OF 28

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
36600	22-13	AFTER SETTING UP THE INITIAL CONDITIONS FOR PRIMARY CONTROL-	T.C.		4/6/82	
		LER TESTING PER PARA 4.11.4.1, PERFORM PRIMARY CONTROLLER				
		TESTS AT 105K PER PARA 4.11.4.2.				
36700	22-13	COLLECT BAND 6 RESPONSIVITY DATA AT 105K PER 16192, REV E.	T.C. FOR C.Clark		4/6/82	
	22-41					
		NOTE: COLLECTION OF BAND 6 RESPONSIVITY DATA AT 105K MAY BE				
		WAIVED BY MUTUAL CONSENT OF SYSTEMS ENGINEERING AND THE COOL-				
		ER REA, WAIVER TO BE INDICATED BY SIGNATURES BELOW:				
		SYSTEMS ENGINEERING ________________				
		COOLER REA ______________				
36800	22-13	PERFORM OUTGAS MODE CONTROLLABILITY TESTS PER THE INSTRUCTIONS	T.C.		4/6/82	
		OF PARA 4.12, RECORDING DATA PER APPENDIX 50.				

SBRC ASSEMBLY HISTORY RECORD CONTINUATION SHEET

SHEET 25 OF 26

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
36900	51-11	TERMINATE TESTING PER THE INSTRUCTIONS OF PARA 4.13, TAKING CARE TO KEEP THE COOLER STAGES WARMER THAN THE SBS DURING WARMUP.	TLC		4/8-9/82	
37000	22-31	ATTACH COPIES OF ALL DATA SHEETS TO THIS AHR.	[illegible]		4/23/82	
37100	51-41	Q.A. ENGINEER REVIEW DATA SHEETS TO ENSURE THE REQUIREMENTS OF SPEC 16188, REV B, HAVE BEEN MET.				
37200	22-74	TRANSPORT COOLER/PREAMP TO FLOW BENCH. COOLER MUST BE DOUBLE BAGGED IF NOT IN CLEAN AREA.	[illegible]		4/9/82	

SB 0295A DEC 77

ORIGINAL PAGE IS OF POOR QUALITY

SBRC ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF: AHR DATED AHR SUPPLEMENT NO.
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
37300	22-74	REMOVE INSTRUMENTATION TEST LEADS INSTALLED TO THE COLD AND INTERMEDIATE STAGE RADIATORS PER PARA 4.3.2. RETORQUE SCREWS DISTURBED PER DRAWING 51310, REV B E.O. 3470A & 3907A			4/9/82	SCREWS NOT TORQUED
37400	51-41	Q.A. WITNESS TORQUE ABOVE.		12	4/9/82	
37500	22-74	REMOVE CONNECTORS A3J1, A3J2 AND A3J3 FROM MOUNTING RING OF ITEM 10, BY REMOVING HARDWARE SHOWN ON DRAWING 52532 SHOWN ON SHEET 5, VIEW "M".			4/9/82	
		CAUTION: COOLER CABLES AND FLEX CABLES ARE STATIC SENSITIVE AND MUST BE HANDLED PER SP80113.				

SB 0295A DEC 77

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY, RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
37600	51-41	Q.A. INSPECT ABOVE OPERATION.	AD	[illegible]	4/9/82	
37700	22-74	DISCONNECT FLEX CABLES CONNECTORS FROM PREAMPLIFIER MODULE ASSEMBLY AND REMOVE PREAMP MODULE FROM COOLER ASSEMBLY BY REMOVING FASTENERS, ITEM 19 AND 26 OF DRAWING 52532, SIX PLACES.	[illegible]		4/9/82	
37800	22-74	REMOUNT FIXTURE 75788 TO ASSEMBLY AND MOUNT BANDS 5, 6 AND 7 CONNECTORS TO THE FIXTURE AS SHOWN ON DRAWING 51200, SHEET 3. ENSURE THAT THE STATIC PROTECTIVE CONNECTORS ARE FIRMLY IN PLACE. TORQUE MOUNTING SCREWS AS INDICATED ON THE DRAWING.	[illegible]		4/9/82	

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ASSEMBLY HISTORY RECORD CONTINUATION SHEET

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	CONTINUATION OF:
51200	003	COOLER ASSEMBLY RADIATIVE T.M.	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS	PERFORMED BY OPER	INSP	DATE	REMARKS
37900	51-41	Q.A. WITNESS TORQUE IN ABOVE OPERATION.			9/4/	
						PERFORM SUPPLEMENT NO 2 4-17-82
38000	51-41	Q.A. REVIEW THIS AHR FOR COMPLETENESS. ISSUE A BLUE FORM 57			4/21/	PERFORM SUPPLEMENT
		FOR COMPLETE COOLER ASSEMBLY.	up to	Supp #3	only	NO. 3 AND 4 4/20/82
38100	AF	MCI				
38200	22-73	DELIVER A COPY OF APPENDIX 60 OF SPEC 16188 TO SYSTEMS ENG-				
		INEERING AND DELIVER THE ORIGINAL AHR TO THE PROJECT QUALITY				
		ENGINEER.				

SB 0295A DEC 77

ORIGINAL PAGE IS OF POOR QUALITY

SBRC	ASSEMBLY HISTORY RECORD WORK SHEET	SHEET / OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED AHR SUPPLEMENT NO.
51200	003	Cooler Rad. Assy	

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
33400	22/41	IN SETTING UP FOR THIS OPERATION, AN	T.T.C	3/30/82	T.T.C	3/31/82
		SBRC INTERNAL MEMO FROM R.B.				
		SCHNEIDER TO T.T. CAFFERTY, DATED				
		19 JUNE 1980 AND ENTITLED "THERMAL				
		VACUUM RADIATIVE COOLER TEST-BOARD				
		OPERATION" IS USED TO FACILITATE				
		THE HOOKUP OF TEST EQUIPMENT.				
		IT IS NECESSARY THAT THE CON-				
		TENTS OF THIS MEMO BE INCORPOR-				
		ATED INTO SPEC 16188. ALSO, IT				
		WAS NOTED THAT THE 80V POWER				
		SUPPLY WAS PUTTING OUT 88V				
		WHEN THE REFERENCED MEMO				
		CALLS FOR THE VALUE TO BE 80±5V.				
34100	22/41	OPERATING UNDER TROUBLE REPORT 5811(?).	T.T.C	4/1/82		
		REMOVED COVER FROM PREAMP ASSY.				
		~~[illegible]~~ INSPECTING R7: 1-365Ω, 2-332Ω, 3-352Ω, 4-332Ω				
		MEASURING V ACROSS R7: 1-3.69V 2-3.60V 3-3.67V 4-3.52V				

I[illegible]: 1-10.1mA [illegible] 4-10.6 I[illegible]: 1-9.9 2-10.4 4-10.8

SB 2022 DEC 77

ORIGINAL PAGE IS OF POOR QUALITY

SBRC	ASSEMBLY HISTORY RECORD WORK SHEET	SHEET 2 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED / AHR SUPPLEMENT NO.
51200	003	COOLER ASSY. RAD TM	

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
CONT 34100	22.41	$R_?$ (MEAS) 1 - 370 Ω 3 - 360 Ω / 2 - 330 Ω 4 - 330 Ω		4/1/82		
		If's ARE ABOUT WHAT THEY SHOULD				
		BE. REMOVING B6 OUTPUT CONNECTOR	(S. SCHIEFFEN)			
		DETECTOR RESISTANCE NECESSARY TO PRODUCE $V_C = 0$:				
		CH 1 - 43 Ω 3 - 42 Ω / 2 - 43 Ω 4 - 43 Ω				
		SIMULATED DETECTOR Ω V_C ≈ V_C OBSERVED @			95K IN COOLER TV TEST	
		1 -				
		2 - IN M. SCONAKER'S				
		3 - BOOK, SEE ATTACHED PAGES.				
		4 =				

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HUGHES

HUGHES AIRCRAFT COMPANY
SPACE AND COMMUNICATIONS GROUP
EL SEGUNDO, CALIFORNIA

Trouble Report

SPACE AND COMMUNICATIONS GROUP

FAILURE REPORT

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S 8114

ORIGINATOR

1. PROGRAM NAME AND NUMBER: [illegible] 2111-2
2. GLA:
3. MODEL: E-1
4. TIME OBSERVED: 4:00 PM
5. DATE OBSERVED: MO 3 DA 31 YR 82

6. HARDWARE LEVEL WHEN FAILURE WAS OBSERVED: ☐ SPACECRAFT ☐ SYSTEM ☐ SUBSYSTEM ☐ UNIT ☐ ASSEMBLY ☐ SUBASSEMBLY ☐ MODULE ☐ MICAM ☐ CARD ☐ PART

EQUIPMENT IDENTIFICATION	NAME	PART NUMBER	S/N	MANUFACTURER
7 SUBSYSTEM				
8 UNIT	Pre Amplifier	50980	003	SBRC
9 ☐ ASSEMBLY ☐ SUBASSEMBLY	Radiation Cooler	51200	03	
10 ☐ MODULE ☐ MICAM ☐ CARD				
11 OTHER				

12. TEST WHEN FAILURE WAS OBSERVED: ☐ DEVELOPMENT ☐ IN-PROCESS ☐ QUALIFICATION ☒ ACCEPTANCE ☐ INTEGRATION ☐ SYSTEM ☐ LAUNCH OPERATIONS ☐

13. ENVIRONMENT WHEN FAILURE WAS OBSERVED: ☐ AMBIENT ☐ EMC/RFI ☐ RADIATION ☐ VIBRATION ____ AXIS FOR ____ MIN TYPE ____ ☐ TEMP ____ ☒ THERMAL VAC ____ HRS AT ____ ☐ OTHER

14. DESCRIPTION OF FAILURE: Curves voltage does not appear to be normal in order to determine a set [illegible] for [illegible] (in [illegible] only 11192)

15. TEST PROCEDURE: | PARA 4.3.2 | 16. ORIGINATOR: [signature] | ORG 2-31 | DATE 4-1-82 | 17. CONTINUATION ☐ SHEET USED

ENGINEERING EVALUATION

18. VERIFICATION AND FAILURE ANALYSIS

19. FAILED ITEM NAME AND PART NUMBER

20. ☐ FOLLOWING REWORK/RETEST REQUIRED
☐ REWORK/RETEST NOT REQUIRED BECAUSE

21. AUTHORIZATION | ORG | DATE | 22. CONTINUATION ☐ SHEET USED

MANUFACTURING AND TEST

23. REWORK/RETEST ACTION TAKEN

24. QA REWORK

25. QA RETEST

26. LIST ALL PARTS REPLACED PART NUMBER	CKT SYM	PART LOT NUMBER	DATE CODE	MANUFACTURER	PROBABLE DEFECT	ANALYSIS NUMBER

27. REWORK BY | ORG | DATE | 28. RETESTED BY | ORG | DATE | 29. CONTINUATION ☐ SHEET USED

ENGINEERING/RELIABILITY

30. CAUSE AND CORRECTIVE ACTION

31. CONTINUATION ☐ SHEET USED

32. DOCUMENT IMPLEMENTING CORRECTIVE ACTION

33. FRB CLOSURE

34. BASIC CAUSE OF VERIFIED FAILURE: ☐ DESIGN ☐ ENVIRONMENTAL ☐ DEFECTIVE PARTS ☐ TEST EQUIPMENT ☐ TEST PROCEDURE ☐ TEST SET-UP ☐ MFG PROCEDURE ☐ ASSY/FAB ERROR ☐ WORKMANSHIP ☐ WIRING ERROR ☐ ROUGH HANDLING ☐ WEAR-OUT ☐ UNKNOWN | DEFECT CODE

35. FAILURE TYPE: ☐ PRIMARY ☐ INDUCED ☐ UNKNOWN ☐ NO FAILURE

36. FAILURE CLASSIFICATION: ☐ CRITICAL ☐ MAJOR ☐ MINOR ☐ SAFETY

37. RESPONSIBLE ENGINEER | ORG | DATE | 38. SPACECRAFT SYSTEM ENGINEER | ORG | DATE

39. RELIABILITY | ORG | DATE | 40. CUSTOMER OR SUPPLIER | DATE

D11573 SC JAN 80

DATE ______ TITLE OR PROJECT ______

ATTACHMENT TO TROUBLE REPORT 5811

Cooler out of chamber.

R7 measured *		R7 visual	VR7	I_f calc	I_f desir
370	ch 1	365 Ω	3.69	10.1	9.9
330	ch 2	332 Ω	3.60	10.8	10.4
360	ch 3	357 Ω	3.67	10.3	10.0
330	ch 4	332 Ω	3.52	10.6	10.8

* Using the 20K scale, low voltage

** This is the voltage at the top w/ ~~respect~~ to gnd.

Voltage at the bottom is -11.5

A

DATE ______ TITLE OR P

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contin

ler.

	VR7	I_f calc	I_f desired.	$V_{R_{17}}$ **	$V_{R_{20}}$ **	V_c
	3.69	10.1	9.9	+.62	+.57	+8.8
–	3.60	10.8	10.4	–.39	–.41	+9.0
–	3.67	10.3	10.0	–.83	–.93	+8.5
–	3.52	10.6	10.8	–.57	–.58	+8.9

, low voltage
at the
gnd.
ttom is -11.5

continue

ATTACH TO TROUBLE REPORT S8114

B

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READ AND UNDERSTOOD BY

DATE ______ TITLE OR PROJECT ______

Disconnect detector connector using RD-19 a

	R_{DET} required for V_c =		V_c @ 75°K	R_{DET} FOR $V_c = 0$	R_D
ch 1	36	+ 4.35	+ 4.11	43 Ω	
2	35	+ 6.07	+ 6.11	43 Ω	
3	35	+ 4.66	+ 4.42	42 Ω	
4	34	+ 6.35	+ 6.04	43 Ω	

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ATTACH TO TROUBLE REPORT
S8114

C

Jack calculated new values for R8 & R9 as shown on his memo below

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SANTA BARBARA RESEARCH CENTER

AVOID VERBAL ORDERS

TO M. Slonaker

DATE 4/1/82

FROM J. Lansing

SUBJECT F1 Band 6 Balance Circuit

R8, R9 Values should be:

Channel	Ohms			
1	19.7	2	19.6	-221
2	18.6		18.7	-219
3	19.0	6	18.7	-219
4	18.2		18.7	-219

SBRC FORM 14-0312

READ AND UNDERSTOOD BY:

DATE ______ TITLE OR PROJECT ______

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We installed the "pretty close" values we had in stores.

	Installed	Desired
ch 1	19.6 Ω	19.7
ch 2	18.7 Ω	18.6
ch 3	18.7 Ω	19.0
ch 4	18.7 Ω	18.2

For	R_{DET},	V_c
Ch 1	36	+1.85
Ch 2	35	+2.05
ch 3	35	+1.20
ch 4	34	+2.40

These are closer than they were. Looks like they may be > +2.5' @ 90°K. Possibly should decrease Chs 1, 2 & 4 about 1 Ω.

READ AND UNDERSTOOD BY:

(Witness' Signature) (Date) (Your Signature) (Date)

(Witness' Signature) (Date)

SBRC ASSEMBLY HISTORY RECORD WORK SHEET SHEET 3 OF ?

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED / AHR SUPPLEMENT NO.
S1200	003	COOLER ASSY	

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
34/100	2213	REMOVE 50984 ASSY FROM CHAMBER	MJS	4/1		4/1/82
		MEASURE I_F, 4 CHANNELS	MJS	4/1		
		DETERMINE R_D FOR V_c (93K)	MJS	4/1		
		INSTALL R8', R9'	W+B.	4/1/82		
		MEASURE V_c (R_D)	MJS	4/1	B/P 50984 BAND 6	
					Book SEE ADCTA	172 4/1/82
	CRL	CH. / R8 / R9 / 908678- / PO/WO REC. NO.				
		1 / 19.6 / 19.6 / 221 / ~~45-36241 C2157~~	EIC CRL		→ 45-63261 I0026A	
		2 / 18.7 / 18.7 / 219 / 45-36241 C2157				
		3 / 18.7 / 18.7 / 219 / 45-36241 C2157	CRL	04/02/82		
		4 / 18.7 / 18.7 / 219 / 45-36241 C2157				
		CHANNEL 4 RE-CHANGED AS A RESULT				
		OF LANSING RECOMMENDATION.				
		TRACEABILITY AS NOTED BELOW.				
		CH / R8 / R9 / 908678- / PO/WO REC NO				
		4 / 17.4 / 17.4 / 216 / 45-36595/C5313				
		MEASURED V_c = -0.15 V w/ 35 Ω DETECTOR R	CRL	4/2/82		

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SBRC ASSEMBLY HISTORY RECORD WORK SHEET

SHEET 4 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED / AHR SUPPLEMENT NO.
51200	003	Cooler Assy. Rad. TM	

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
34100	22/74	RECONNECT B6 OUTPUT CONNECTOR		4/7/82		
	22-74	REPLACE PREAMP COVER				
	22-74	MOVE INTERSTAGE RESISTANCE MONITOR				
		LEADS FOR INTERMEDIATE AND AMBIENT				
		STAGES TO OPPOSITE SIDE OF COOLER,				
		TO FACILITATE ATTACHMENT TO BULKHEAD				
		CONNECTOR. (RE-TORQUING OF OUTBOARD			(NOT TORQUED)	
		INTERMEDIATE RADIATOR SCREWS REQ'D)			THIS DATE	
Ref. opr.						
35800	51-11	Board 50942 -202- broken pin 87	I 180	4/5/82	REWORK TO PRINT	
		Ref. AWRS of 50942 for suspended pin 87				4-5-82
	51-11	Ref. F/R 8469	I 180	5 April 82		
	51-11	Board 5 Channels 7 and 10 High Signal	I 150	5 April 82	F/R 8469 / F/R 8117	
		Response can not read. EO 4136A Sheet 2				

SB 0295B DEC 77

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SBRC	ASSEMBLY HISTORY RECORD WORK SHEET			SHEET 5 OF
PART NUMBER 51200	SERIAL OR LOT NUMBER 003	ASSEMBLY NAME Cooler Assy. Rad. TM	PART OF: AHR DATED AHR SUPPLEMENT NO.	

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
35800	22-41	INSTALLATION OF SELECTS TO ALIGN 90K	T.T.C	4/6/82		
		TEMPERATURE CONTROL SETPOINT PERFORMED				
		OUT OF SEQUENCE FOLLOWING OP. 35800				
		(OP'S 33700, 33800 MOVED TO FOLLOW 35800				
		AND PRECEDE 35900).				
		THE FOLLOWING SELECT RESISTORS WERE				
		INSTALLED ON STAND-OFFS AFTER REMOVING				
		THE RESISTORS WHICH WERE IN PLACE:				
		NEW RESISTORS: (BOARD A4)				
		Ω / PO/WO R.C. NO. / 908600-				
		R45 / 698 / 45-35677 / 111				
		R49 / 140 / 45-23433 / 44				
		THE ABOVE WERE INSTALLED AND THE BOARD				
		WAS PLUGGED IN ---- WITH THE RESULT				
		THAT CONTROL WAS ESTABLISHED AT ABOUT				
		89K. CHANGED R45 AGAIN, AS BELOW:				
		R45 / 604Ω / 45-36241 / 908600-105				
			T.T.C	4/6/82		

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SBRC	ASSEMBLY HISTORY RECORD WORK SHEET	SHEET 6 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED / AHR SUPPLEMENT NO.
51200	003	Cooler Assy. Rad. TM	

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
35100	22-41	RE-CHECK OF B5,7 @ −186.7°C	[illegible]/MJS	4/6/82	SEE FR 8117	
		1mV SCOPE GAIN (X 400)	I 180	4-6-82		
		NOISE B5: (V) w/60Hz (LOTS)				
		1 0.22V 7 0.41 13 0.23				
		2 0.22 8 0.23 14 0.21				
		3 0.28 9 0.26 15 0.26				
		4 0.29 10 1.1 16 0.21				
		5 0.23 11 0.23				
		6 0.22 12 0.31				
		NOISE B7:				
		1 1.1V 7 0.24 13 0.23				
		2 0.30V 8 0.23 14 0.26				
		3 0.23V 9 0.21 15 0.23				
		4 0.21 10 0.24 16 0.28				
		5 0.22 11 0.21				
		6 0.21 12 0.23				

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SBRC ASSEMBLY HISTORY RECORD WORK SHEET

SHEET 7 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED / AHR SUPPLEMENT NO.
51200	003	Cooler Assy. Rad. TM	

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
35106		CONT. FROM PREVIOUS PAGE	TTC/MTS	4/6/82		
		OFFSETS: (mV)				
		B5				
		1 -6	7 +4	13 -2				
		2 -3	8 +2	14 -2				
		3 -2	9 +3	15 -3				
		4 +2	10 +8	16 -3				
		5 -4	11 -2				
		6 -4	12 -17				
		B7				
		1 -170	7 -2	13 0				
		2 -4	8 0	14 -2				
		3 -4	9 -2	15 -3				
		4 +3	10 0	16 0				
		5 -3	11 -1				
		6 -4	12 0				
			TTC/MTS	4/6/82		

SB 0295B DEC 77

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FROM COMMENT SHEET #6

SIGNAL/NOISE

CFPA SERNO 201 BAND 5 PREAMP SERNO 201 DATE: 04-06-82

BAND 5 POST AMP SERNO 201

T1 READING ______ VOLTS= ______ °K

T2 READING ______ VOLTS= 87 °K

TEST ENGINEER

M.J. SLONAKER

BAND 5

PRE AMP mV/div

CHANNEL	PREAMP OUTPUT			~~POST AMP OUTPUT~~			CALCULATIONS	
	SIGNAL	NOISE	BROAD BAND NOISE	@ ≈ 1KHz SIGNAL	~~NOISE~~	BROAD BAND NOISE	MAX $\leq 5.8\times10^{-12}$ NEP λ	MIN $\geq .8$ A/W Rλ
1					0.22	0.22		
2					0.22	0.22		
3					0.28	0.28		
4					0.29	0.29		
5					0.23	0.23		
6					0.22	0.22		
7					0.41	0.41		
8					0.23	0.23		
9					0.26	0.26		
10					1.1	1.10		
11					0.22	0.23		
12					0.31	0.31		
13					0.23	0.23		
14					0.21	0.21		
15					0.26	0.26		
16					0.21	0.21		

POST AMP GAIN=
APERTURE TO FILTER=
DETECTOR AREA=
H_0^{∞} =
BLACKBODY TO λ=
BLACKBODY TEMPERATURE=
DESIGN ENGINEER [signature] III

FEEDBACK RESISTOR=
NOISE CORRECTION FACTOR
BANDWIDTH=
APERTURE DIAMETER=
SCOPE GAIN=
Q.A. ENGINEER [signature] 172

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV	SHEET

FORM NO. [illegible] DIETERICH-POST CLEARPRINT 1020

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FROM COMMENT SHEET
#6

TEST SHEET 12
SHEET 3 OF 3

SIGNAL/NOISE

CFPA SERNO 201 BAND 7 PREAMP SERNO 201 DATE: 04-06-82

BAND 7 POST AMP SERNO 201

T1 READING ______ VOLTS= ______ °K

TEST ENGINEER

T2 READING ______ VOLTS= 87 °K

M. J. SLONAKER

BAND 7

PRE AMP 1mV/div

CHANNEL	PREAMP OUTPUT			~~POST AMP OUTPUT~~			CALCULATIONS	
			BROAD BAND NOISE	@ ≈ 1KHz		BROAD BAND NOISE	MAX $\leq 4.8 \times 10^{-12}$ W NEP λ	MIN ≥ 1.0 A/W Rλ
	SIGNAL	NOISE		SIGNAL	NOISE			
1					~~1.1~~	1.1		
2					~~0.30~~	0.30		
3					~~0.23~~	0.23		
4					~~0.21~~	0.21		
5					~~0.22~~	0.22		
6					~~0.21~~	0.21		
7					~~0.24~~	0.24		
8					~~0.23~~	0.23		
9					~~0.21~~	0.21		
10					~~0.24~~	0.24		
11					~~0.21~~	0.21		
12					~~0.23~~	0.23		
13					~~0.23~~	0.23		
14					~~0.26~~	0.26		
15					~~0.23~~	0.23		
16					~~0.28~~	0.28		

POST AMP GAIN =
APERTURE TO FILTER =
DETECTOR AREA =
H_0^{∞} =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =
DESIGN ENGINEER

FEEDBACK RESISTOR =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER =
SCOPE GAIN =
QA ENGINEER

1/172

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV	SHEET

ORIGINAL PAGE IS OF POOR QUALITY

SIGNAL/NOISE

CFPA SERNO 201 BAND 6 PREAMP SERNO 101 DATE: 04-07-82

BAND 6 POST AMP SERNO 201

T1 READING ______ VOLTS= ______ °K

T2 READING 9802 VOLTS= 89.9 °K

TEST ENGINEER C. R. Lone

BAND 6

CHANNEL	PREAMP OUTPUT (500 µV/div)			POST AMP OUTPUT (10 mV/div)			CALCULATIONS	
	SIGNAL 5mV/div	NOISE	BROAD BAND NOISE	SIGNAL 100mV/div	NOISE	BROAD BAND NOISE	MAX $\leq .93 \times 10^{-10}$ NEP λ	MIN ≥ 3200 V/W R λ
1	39 mV		.200 V	680 mV		.160 V		
2	28 mV		.197 V	700 mV		.220 V		
3	40 mV		.208 V	680 mV		.165 V		
4	25 mV		.185 ~~mV~~ V	630 mV		.205 V		

col

POST AMP GAIN =
APERTURE TO FILTER =
DETECTOR AREA =
H_0^{∞} =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =

PREAMP GAIN =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER =
SCOPE GAIN =

EQUIPMENT USED	MODEL	SERNO	CAL DUE DATE
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			

BALANCE VOLTAGES

CH. 1 2.24 V
CH. 2 2.74 V
CH. 3 1.80 V
CH. 4 1.03 V

QA ENGINEER R. L. Diel (I 172)

DESIGN ENGINEER Still Clawson III (I 180) witness 4-7-82

TITLE

SIZE A | CODE IDENT NO 11323 | NUMBER 16192

SCALE | REV | SHEET

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THERMAL VACUUM TEST

TEMP.	CHANNELS	1	2	3	4
90°K ± 1.5°K	R8' 908600-				
	R9' 908600-				
	V_c	2.24 V	2.24 V	1.80 V	1.03 V
	I_d				
	R_d				
	Signal/Noise				
	R_λ				
95°K ± 1.5°K	V_c				
	I_d				
	R_d				
	Signal/Noise				
	R_λ				
105°K ± 1.5°K	V_c				
	I_d				
	R_d				
	Signal/Noise				
	R_λ				
Added Temp if req'd.	V_c				
	I_d				
	R_d				
	Signal/Noise				
	R_λ				

Test Engineer N. C. Davison III Date April 8, 1982

Design Engineer Orville C. Davison III Date APRIL 8, 1982

Q. A. Engineer P. L. Friel Date 4-8-82

180 172 Witten 4-7-82

See Sheet 1 for symbol definitions

SIZE	CODE IDENT NO	NUMBER
A	11323	16192
SCALE	REV	SHEET

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FROM COMMENT SHEET # 8

TEST SHEET 12
SHEET 3 OF 3

SIGNAL/NOISE

CFPA SERNO 201 BAND 7 PREAMP SERNO 201 DATE: 04-07-82

BAND 7 POST AMP SERNO 201

T1 READING ____ VOLTS= ____ °K

T2 READING ____ VOLTS= 94.5 °K

TEST ENGINEER C. R. [signature]

BAND 7

PRE AMP (mV/√Hz)

CHANNEL	~~PREAMP OUTPUT~~			~~POST AMP OUTPUT~~			CALCULATIONS	
			BROAD BAND NOISE	@ ≈ 1KHz		BROAD BAND NOISE	MAX $\leq 4.8 \times 10^{-12}$ W NEP λ	MIN ≥ 1.0 A/W Rλ
	SIGNAL	NOISE		SIGNAL	NOISE			
1						0.93		
2						0.30		
3						0.23		
4						0.21		
5						0.23		
6						0.21		
7						0.47*		
8						0.22		
9						0.24		
10						0.23		
11						0.23		
12						0.23		
13						0.23		
14						0.26		
15						0.26**		
16						0.29		

POST AMP GAIN =
APERTURE TO FILTER =
DETECTOR AREA =
H_0^{∞} =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =
DESIGN ENGINEER [signature]

FEEDBACK RESISTOR =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER =
SCOPE GAIN =
QA ENGINEER [signature] 172

* EXCESS 60 Hz
** POPCORN NOISE

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV	SHEET

ORIGINAL PAGE IS OF POOR QUALITY

FROM COMMENT SHEET #8

TEST SHEET 12
SHEET 1 OF 3

SIGNAL/NOISE

CFPA SERNO 201 BAND 5 PREAMP SERNO 201 DATE: 04/07-82

BAND 5 POST AMP SERNO 201

T1 READING ______ VOLTS= ______ °K

T2 READING ______ VOLTS= 94.5 °K

TEST ENGINEER C.R. Lowe

BAND 5 PRE AMP 1mV/div

CHANNEL	~~PREAMP OUTPUT~~			~~POST AMP OUTPUT~~			CALCULATIONS	
			BROAD BAND NOISE	@ ≈ 1KHz		BROAD BAND NOISE	MAX $\leq 5.8\times10^{-12}$ NEP λ	MIN $\geq .8$ A/W Rλ
	SIGNAL	NOISE		SIGNAL	NOISE			
1					~~0.21~~	0.21		
2					~~0.21~~	0.21		
3					~~0.26~~	0.26		
4					~~0.26~~	0.26		
5						0.22		
6						0.23		
7						0.36*		7/12 6469
8						0.27		
9						0.58*		7/12 6469
10						0.95		
11						0.22		
12						0.36		
13						0.22		
14						0.21		
15						0.25		
16						0.21		

POST AMP GAIN=
APERTURE TO FILTER=
DETECTOR AREA=
H_0^{∞} =
BLACKBODY TO λ=
BLACKBODY TEMPERATURE=
DESIGN ENGINEER [signature]

FEEDBACK RESISTOR=
NOISE CORRECTION FACTOR
BANDWIDTH=
APERTURE DIAMETER=
SCOPE GAIN=
Q.A. ENGINEER [signature] I 172

* EXCESS 60 Hz

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV	SHEET

FORM NO. ... DIETZGEN-POST CLEARPRINT 1020

SBRC ASSEMBLY HISTORY RECORD WORK SHEET — SHEET 8 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED / AHR SUPPLEMENT NO.
51200	003	Cooler Assy. Rad. TM	

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
35100	22-41	RECHECK OF B-5,7 @ 179.9°C, 94.5K			SEE FR8117	
		1mV/div Scope (480 Scope Gain)	[illegible]	04/1/82		
		WIDE BAND NOISE BAND 5				

CH		CH		CH		CH	
1	.21	5	.22	9	* .58	13	.22
2	.21	6	.23	10	.95	14	.21
3	.26	7	* .36	11	.22	15	.25
4	.26	8	.27	12	.36	16	.21

BAND 7

CH		CH		CH		CH	
1	.93 V	5	.23 V	9	.24	13	.23
2	.30 V	6	.21 V	10	.23	14	.26
3	.23 V	7	* .47V	11	.23	15	** .26
4	.21 V	8	.22V	12	.23	16	** .29

* EXCESS 60Hz

** APPEARS TO HAVE POPCORN NOISE

SB 0295B DEC 77

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SBRC

ASSEMBLY HISTORY RECORD WORK SHEET

SHEET 9 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED AHB SUPPLEMENT NO.
51200	003	Cooler Assy. Rad. TM	

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
35100	22-41	CONTINUED FROM PREVIOUS PAGE				
			CPR	4/01/82		
		OFFSETS BAND 5 (mV)				

CH		CH		CH		CH	
1	-8	5	-4	9	+1	13	-2
2	-2	6	-4	10	+90	14	-2
3	-1	7	+2	11	-1	15	-1
4	+3	8	-3	12	-19	16	-2

BAND 7 (mV)

CH		CH		CH		CH	
1	-120	5	-3	9	-3	13	-2
2	-4	6	-6	10	0	14	-3
3	-6	7	-2	11	-2	15	-4
4	+0	8	+1	12	-1	16	-4

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SIGNAL/NOISE

CFPA SERNO 201 BAND 6 PREAMP SERNO 101 DATE: 4-7-82 3.30 PM

BAND 6 POST AMP SERNO 201

T1 READING .9676 VOLTS= 94.5 °K

T2 READING .9678 VOLTS= 94.5 °K

TEST ENGINEER

C. Lane

BAND 6

CHANNEL	PREAMP OUTPUT			POST AMP OUTPUT			CALCULATIONS	
	SIGNAL	NOISE	BROAD BAND NOISE	SIGNAL	NOISE	BROAD BAND NOISE	MAX $\leq .93 \times 10^{-10}$ NEP λ	MIN $\geq$ 3200 V/W R λ
1	33 mV			560		.165		
2	22			540		.215		
3	31			550		.168		
4	20			480		.195		

POST AMP GAIN = $\frac{\text{postamp signal}}{\text{preamp signal}}$
APERTURE TO FILTER=
DETECTOR AREA=
H_0^{∞} =
BLACKBODY TO λ=
BLACKBODY TEMPERATURE = 218 - 225

PREAMP GAIN = 500
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER=
SCOPE GAIN= 48

EQUIPMENT USED MODEL SERNO CAL DUE DATE

1)
2)
3)
4)
5)
6)
7)
8)

QA ENGINEER [signature] I 172

DESIGN ENGINEER [signature] 4-7-82

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV	SHEET

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OF POOR QUALITY

THERMAL VACUUM TEST *

TEMP.	CHANNELS	1	2	3	4
90°K ± 1.5°K	R8' 908600-				
	R9' 908600-				
	V_c				
	I_d				
	R_d				
	Signal/Noise				
	R_λ				
95°F ± 1.5°K	V_c	+1.34	+2.29	+1.26	+0.73
	I_d				
	R_d				
	Signal/Noise				
	R_λ				
105°K ± 1.5°K	V_c				
	I_d				
	R_d				
	Signal/Noise				
	R_λ				
Added Temp if req'd.	V_c				
	I_d				
	R_d				
	Signal/Noise				
	R_λ				

Test Engineer C. R. Lane Date 4-7-82

Design Engineer S. [illegible] Date 4-7-82

Q. A. Engineer [illegible] Date 4-7-82

* See Sheet 1 for symbol definitions

SIZE	CODE IDENT NO	NUMBER
A	11323	10192
SCALE	REV	SHEET

SBRC ASSEMBLY HISTORY RECORD WORK SHEET 4/7/82 SHEET 10 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF:
51200	003	4 PM COOLER ASSY. RAD. TM	AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
35202	22-13	BAND 5,7 NARROWBAND NOISE				
		READINGS IN mV FROM PREAMP	NC	4/7/82		

FREQ \ CH.	BAND 5: 1	7	9 (1)	10 (2)	12 (2)	BAND 7: 1 (2)	7 (3)	15	Δf
50	4.5	3.0	3.0	85	18	65	3.0	19	10
100	2.8	3.0	2.8	80	13	45	2.7	11	10
200	2.5	3.0	28	65	9.0	35	2.7	6.5	10
500	2.3	3.0	2.5	35	7.0	28	2.5	3.5	10
1K	21	30	23	230	65	235	25	34	1K
2K	21	27	23	190	60	190	25	31	1K
5K	21	25	24	130	52	140	23	26	1K
10K	18	23	21	95	39	100	20	19	1K
20K	13	19	18	55	25	55	15	13	1K
50K	10	12	12	21	14	22	10	9	1K

Scope Gain 480. FPA temp 95K

(1) Oscillating at 400K

(2) Noisy

(3) Oscillating at 200K

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FROM COMMENT SHEET #11

TEST SHEET 12
SHEET 1 OF 3

SIGNAL/NOISE

CFPA SERNO 201 BAND 5 PREAMP SERNO 201 DATE: 04-08-82

BAND 5 POST AMP SERNO 201

T1 READING ________ VOLTS= ________ °K

T2 READING ________ VOLTS= 105 °K

TEST ENGINEER C. R. Lone

BAND 5 PREAMP 1mV/div

CHANNEL	PREAMP OUTPUT			~~POST AMP OUTPUT~~			CALCULATIONS	
			BROAD BAND NOISE	@ ≈ 1KHz		BROAD BAND NOISE	MAX $\leq 5.8\times10^{-12}$ NEP λ	MIN $\geq .8$ A/W Rλ
	SIGNAL	NOISE		SIGNAL	NOISE			
1						(1) 0.25		
2						(1) 0.26		
3						0.29		
4						(1) 0.28		
5						(1) 0.27		
6						(1) 0.27		
7						(3) 0.34		
8						0.28		
9						(3) 0.54		
10						(3) 0.92		
11						(1) 0.27		
12						(2) 0.41		
13						(2) 0.26		
14						(1) 0.26		
15						(1) 0.29		
16						0.25		

No 60 Hz on Band 5

POST AMP GAIN=
APERTURE TO FILTER=
DETECTOR AREA=
H_0^{∞} =
BLACKBODY TO λ=
BLACKBODY TEMPERATURE=
DESIGN ENGINEER

FEEDBACK RESISTOR=
NOISE CORRECTION FACTOR
BANDWIDTH=
APERTURE DIAMETER=
SCOPE GAIN=
Q.A. ENGINEER

(1) OSCILLATING @ 1mVp-p, 400KHz
(2) EXCESS LOW FREQ. NOISE

TITLE (3) 2 mVp-p, 400KHz OSCILLATION
(4) 4 mVp-p, 200 KHz "

SIZE A | CODE IDENT NO 11323 | NUMBER 16192

SCALE | REV | SHEET

FORM NO. (7-69) DIETZGEN-POST CLEARPRINT 1020

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FROM COMMENT SHEET # 11

TEST SHEET 12
SHEET 3 OF 3

SIGNAL/NOISE

CFPA SERNO 201 BAND 7 PREAMP SERNO 201 DATE: 04-08-82

BAND 7 POST AMP SERNO 201

T1 READING ______ VOLTS= ______ °K

T2 READING ______ VOLTS= 105 °K

TEST ENGINEER C. R[illegible]

BAND 7

PRE AMP

mV/div

CHANNEL	PREAMP OUTPUT			~~POST AMP OUTPUT~~			CALCULATIONS	
			BROAD BAND NOISE	@ ≈ 1KHz		BROAD BAND NOISE	MAX $\leq 4.8\times10^{-12}$ W	MIN ≥ 1.0 A/W
	SIGNAL	NOISE		SIGNAL	NOISE		NEP λ	R λ
1						0.83		
2						0.34		
3						① 0.32		
4						0.27		
5						0.31		
6						0.27		
7						② 0.44		
8						0.27		
9						0.28		
10						0.28		
11						0.27		
12						0.29		
13						③ 0.30		
14						0.31		
15						0.32		
16						0.35		

No 60Hz ON BAND 7

POST AMP GAIN =
APERTURE TO FILTER =
DETECTOR AREA =
H_0^{∞} =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =
DESIGN ENGINEER [signature]

FEEDBACK RESISTOR =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER =
SCOPE GAIN =
QA ENGINEER [signature]

I 172

① OSCILLATING @ 1mVp-p, 300KHz
② " " 2mVp-p, 200KHz

TITLE ③ OSCILLATING @ 1mVpp, 400KHz

SIZE	CODE IDENT NO.	NUMBER
A	11323	16192

SCALE REV SHEET

4

SBRC ASSEMBLY HISTORY RECORD WORK SHEET

SHEET 11 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED / AHR SUPPLEMENT NO.
51200	003	Cooler Assy. Rad TM	

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
35303	22-13	WIDEBAND NOISE BAND 5-7				
		SCOPE SCALE 1mV/div, 105°K	CRL	04/08/82		
		BAND 5			CH. 9 4mVp-p @ 200K Hz	
					CH. 7: 2mVp-p 400K Hz	
		1) .25V 5) .27V 9) .54V* 13) .26V			No 60Hz IN BAND 5	
		2) .26V 6) .27V 10) .92V 14) .26V			CH. 12, 10 HAVE EXCESS LOW	
		3) .29V 7) .34V** 11) .27V 15) .29V			FREQUENCY NOISE	
		4) .28V 8) .28V 12) .41V 16) .25V			CH. 1, 2, 4, 5, 6, 11, 13, 14, 15 ARE	
					OSCILLATING AT ≈ 400 KHz	
		BAND 7			1mVp-p.	
		1) .83V 5) .31V 9) .28V 13)** .30V			CH. 3 1mVp-p OSC. AT 800K Hz	
		2) .34V ~~.31V~~ 6) .27V 10) .28V 14) .31V			CH. 7 2mVp-p " " 200K Hz	
		3) .32V ~~.33~~ 7) .44V* 11) .27V 15) .32V			CH 13 1mVp-p " " 400K Hz	
		4) .27V 8) .27V 12) .29V 16) .35V			No 60Hz IN BAND 7	
		* OSCILLATION AT ≈ 200kHz				
		** " " ≈ 400kHz				

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SB 0005D DEC 77

SBRC ASSEMBLY HISTORY RECORD WORK SHEET

SHEET 12 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED / AHR SUPPLEMENT NO.
51200	003	Cooler Assy. Rad. TM	

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.				OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
35404	22-13	BAND 5 - 7 OFFSET 105°K							
		(mV)				CAl	0%/82		
		BAND 5							
		1) -17mV	5) -7mV	9) +1mV	13) -3mV				
		2) -1	6) -7	10) +100	14) -8				
		3) -7	7) -2	11) 0	15) -3				
		4) +4	8) -15	12) -26	16) -7				
		BAND 7							
		1) -60mV	5) -13 mV	9) -9 mV	13) -13mV				
		2) -9	6) -17	10) -4	14) -13				
		3) -16	7) -7	11) -11	15) -10				
		4) -11	8) +1	12) -9	16) -8				

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TEST SHEET 12
SHEET 2 OF 3

SIGNAL/NOISE

CFPA SERNO 201 BAND 6 PREAMP SERNO 101 DATE: 4-8-82
11:00 Am

BAND 6 POST AMP SERNO 201

T1 READING .9439 VOLTS= ____ °K

T2 READING .9445 VOLTS= 9 °K

TEST ENGINEER
C. Lane

BAND 6

CHANNEL	PREAMP OUTPUT (mV)			POST AMP OUTPUT (V)			CALCULATIONS	
	SIGNAL	NOISE	BROAD BAND NOISE	~~SIGNAL~~	SIGNAL ~~NOISE~~ 10mV/div	BROAD BAND NOISE	MAX $\leq .93 \times 10^{-10}$ NEP λ	MIN ≥ 3200 V/W R λ
1	18.5				.320	.185		
2	11.5				.285	.190		
3	17.5				.300	.155		
4	10.0				.255	.172		

POST AMP GAIN = Postamp Sig / Preamp Sig
APERTURE TO FILTER=
DETECTOR AREA=
H_0^∞ =
BLACKBODY TO λ=
BLACKBODY TEMPERATURE = 224 °C

PREAMP GAIN =
NOISE CORRECTION FACTOR
BANDWIDTH =.
APERTURE DIAMETER=
SCOPE GAIN= 48

EQUIPMENT USED	MODEL	SERNO	CAL. DUE DATE
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			

QA ENGINEER [signature] (I / 172)

DESIGN ENGINEER S[signature] 4-8-82

(I / 180) witness only 4-8-82

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV	SHEET

FORM NO. [illegible] DIETZGEN-POST CLEARPRINT 1020

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THERMAL VACUUM TEST *

TEMP.	CHANNELS	1	2	3	4
	R8' 908600-				
	R9' 908600-				
$90^{\circ}K \pm 1.5^{\circ}K$	V_c				
	I_d				
	R_d				
	Signal/Noise				
	R_λ				
$95^{\circ}K \pm 1.5^{\circ}K$	V_c				
	I_d				
	R_d				
	Signal/Noise				
	R_λ				
$105^{\circ}K \pm 1.5^{\circ}K$	V_c	+1.24	+2.25	+1.11	+0.78
	I_d				
	R_d				
	Signal/Noise				
	R_λ				
Added Temp if req'd.	V_c				
	I_d				
	R_d				
	Signal/Noise				
	R_λ				

Test Engineer C. Lomax Date 4-8-82 11:00 AM

Design Engineer Slonaker Date 4-8-82

Q. A. Engineer R. L. Diel Date 4-8-82

I/180 auttorse only 4882

* See Sheet 1 for symbol definitions

SIZE	CODE IDENT NO	NUMBER
A	11323	16192
SCALE	REV -	SHEET

FORM NO 0132 1 A (5 69) DIETZGEN-POST CLEARPRINT 1000H

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FROM COMMENT SHEET #13

TEST SHEET 12
SHEET 1 OF 3

SIGNAL/NOISE

CFPA SERNO 201 BAND 5 PREAMP SERNO 201 DATE: 04-08-82

BAND 5 POST AMP SERNO 201

T1 READING ______ VOLTS= ______ °K

T2 READING ______ VOLTS= 105 °K

TEST ENGINEER C. R. Lane

BAND 5

10mV/div PRE AMP

CHANNEL	~~PREAMP OUTPUT~~			~~POST AMP OUTPUT~~			CALCULATIONS	
	SIGNAL	NOISE	BROAD BAND NOISE	* @ ≈ 1KHz SIGNAL	NOISE	BROAD BAND NOISE	MAX $\leq 5.8 \times 10^{-12}$ NEP λ	MIN $\geq .8$ A/W Rλ
1				2.0 mV				
2				2.0				
3				2.2				
4				2.3				
5				2.3				
6				2.1				
7				2.3				
8				2.3				
9				1.9				
10				4.0				
11				2.1				
12				2.4				
13				2.1				
14				2.2				
15				2.1				
16				2.1				

POST AMP GAIN =
APERTURE TO FILTER =
DETECTOR AREA =
H_0^{∞} =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =
DESIGN ENGINEER [signature]

FEEDBACK RESISTOR =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER =
SCOPE GAIN =
Q.A. ENGINEER [signature] 172

* SELECTIVE VOLTMETER SET AT 100, BAND WIDTH AT 10 HZ

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV	SHEET

FORM NO. DIETZGEN-POST CLEARPRINT 1020

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FROM COMMENT SHEET #13

TEST SHEET 12
SHEET 3 OF 3

SIGNAL/NOISE

CFPA SERNO 201 BAND 7 PREAMP SERNO 201 DATE: 04-08-82

BAND 7 POST AMP SERNO 201

T1 READING ______ VOLTS= ______ °K

T2 READING ______ VOLTS= 105 °K

TEST ENGINEER C. R. [signature]

BAND 7

10mV/div PRE AMP

CHANNEL	PREAMP OUTPUT SIGNAL	PREAMP OUTPUT NOISE	PREAMP OUTPUT BROAD BAND NOISE	POST AMP OUTPUT * @ ≈ 1KHz SIGNAL	POST AMP OUTPUT * @ ≈ 1KHz NOISE	POST AMP OUTPUT BROAD BAND NOISE	CALCULATIONS MAX $\leq 4.8 \times 10^{-12}$ W NEP λ	CALCULATIONS MIN ≥1.0 A/W Rλ
1				45mV				
2				47				
3				50				
4				50				
5				55				
6				47				
7				49				
8				48				
9				50				
10				44				
11				42				
12				49				
13				53				
14				55				
15				47				
16				47				

POST AMP GAIN =
APERTURE TO FILTER =
DETECTOR AREA =
H_0^{∞} =
BLACKBODY TO λ =
BLACKBODY TEMPERATURE =
DESIGN ENGINEER [signature]

FEEDBACK RESISTOR =
NOISE CORRECTION FACTOR
BANDWIDTH =
APERTURE DIAMETER =
SCOPE GAIN =
QA ENGINEER [signature] (I / 172)

* SELECTIVE VOLTMETER SET AT 100 H
BAND WIDTH AT 10 HZ

TITLE	SIZE	CODE IDENT NO	NUMBER
	A	11323	16192
	SCALE	REV	SHEET

FORM NO. [illegible] DIETERICH-POST CLEARPRINT 1020

SBRC

ASSEMBLY HISTORY RECORD WORK SHEET

SHEET 13 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED / AHR SUPPLEMENT NO.
51200	003	COOLER ASSY. RAD IM.	

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
35805	22-13	BAND 5-7 SIGNAL MEASUREMENTS				
		CFPA TEMP ≈ 105°K	CM	0[illegible]		
		SELECTIVE VOLTMETER AT 100 Hz,				
		10 Hz BAND WIDTH				
		SCOPE GAIN 48 (10 mV/div)				
		BAND 5 (mV)				
		1) 2.0 | 5) 2.3 | 9) 1.9 | 13) 2.1				
		2) 2.0 | 6) 2.1 | 10) 4.0 | 14) 2.2				
		3) 2.2 | 7) 2.3 | 11) 2.1 | 15) 2.1				
		4) 2.3 | 8) 2.3 | 12) 2.4 | 16) 2.1				
		BAND 7 (mV)				
		1) 45 | 5) 55 | 9) 50 | 13) 53				
		2) 47 | 6) 47 | 10) 44 | 14) 55				
		3) 50 | 7) 49 | 11) 42 | 15) 47				
		4) 50 | 8) 48 | 12) 49 | 16) 47				

SB 0295B DEC 77

C-7

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PER AHR 51200 OPERATION 33900 NCD III 4-8-82

TEST SHEET 13
Sheet 1 of 2

BAND 6 CIRCUIT BALANCE TEST, THERMAL VACUUM.

CFPA SERNO 201 BAND 6 PREAMP SERNO 101 DATE APRIL 8, 1982

BAND 6 POSTAMP SERNO 201 TEST ENGINEER N.C. DAVISON, III

DATA FROM PREVIOUS TEST (SEE PAGE 2)					
CHANNEL		1	2	3	4
R8	VALUE	19.6 Ω	18.7 Ω	18.7 Ω	17.4 Ω
	908600-	-221	-219	-219	-216
R9	VALUE	19.6 Ω	18.7 Ω	18.7 Ω	17.4 Ω
	908600-	-221	-219	-219	-216
I_f		NOT MEASURED IN		THERMAL	VAC.
I_{dd}		NOT MEASURED IN		THERMAL	VAC.
R7	VALUE	365 Ω	332 Ω	357 Ω	332 Ω
	908600-	-84	-80	-83	-80

I_{dd} = Desired detector bias current from detector test

Test Engineer C.R.C. / N.C.D. / M.J.S. Date APRIL 7, 8, 1982

Design Engineer [signature] III Date APRIL 8, 1982

Q. A. Engineer [signature] Date 4-8-82

R_d = detector resistance. Use formula paragraph 7.1

R_λ should equal R_λ on Test Sheet 12 ± 20% after temperature and bias differences accounted for.

I_d = actual detector current. Use formula paragraph 7.1

R8′ = R9′ use formula paragraph 7.1 if new resistors needed

SIZE	CODE IDENT NO	NUMBER
A	11323	16192
SCALE	REV	SHEET

V_c ONLY MEASURED IN THERMAL VAC. ENVIRONMENT Test Sheet 13

THERMAL VACUUM TEST * Sheet 2 of 2

N.C. Davison

M.J. Slonaker

C.R.L.

M.J. Slonaker

TEMP.	CHANNELS	1	2	3	4
	R8' 908600-	SEE VALUES ON PAGE 1			
	R9' 908600-	SEE VALUES ON PAGE 1			
90°K ± 1.5°K APRIL 8, 1982	V_c	+2.24 V	+2.74 V	+1.80 V	+1.03 V
	I_d				
	R_d				
	Signal/Noise				
	R_λ				
95°F ± 1.5°K APRIL 7, 1982	V_c	+1.54 V	+2.29 V	+1.26 V	+0.73 V
	I_d				
	R_d				
	Signal/Noise				
	R_λ				
105°K ± 1.5°K APRIL 8, 1982	V_c	+1.24 V	+2.25 V	+1.11 V	+0.78 V
	I_d				
	R_d				
	Signal/Noise				
	R_λ				
Added Temp if req'd. (NOT REQ'D)	V_c				
	I_d				
	R_d				
	Signal/Noise				
	R_λ				

Test Engineer C.R.L. / N.C.D. / M.J.S. Date APRIL 7, 8, 1982

Design Engineer [signature] Date APRIL 8, 1982

Q. A. Engineer [signature] Date 4/16/82

172

* See Sheet 1 for symbol definitions

SIZE	CODE IDENT NO	NUMBER
A	11323	16192
SCALE	REV	SHEET

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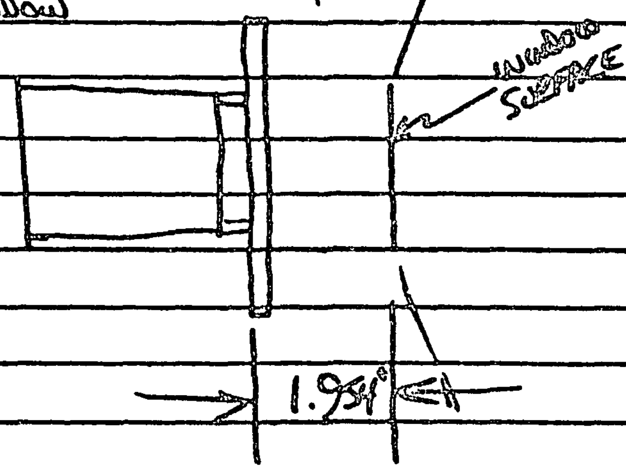
SBRC

ASSEMBLY HISTORY RECORD WORK SHEET

SHEET 14 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED / AHR SUPPLEMENT NO.
51200	003		

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
35806	22-74	REMOVE COOLER FROM VACUUM CHAMBER AND TRANSPORT TO CLEAN ROOM.	[signature]	8/9/82	REF F.R. 58117	I 172
35807	22-74	REMOVE SHORTING SCREWS TO ALLOW BENCH COOLING OPERATION.	[signature] I 180	8/9/82		I 172
35808	22-41	MEASURE BLACKBODY DISTANCE TO WINDOW	[signature] I 180	8/9/82		I 172
35809	22-41	TRANSPORT COOLER TO CLEAN ROOM.	[signature] I 180	8/9/82		I 172



SBRC

ASSEMBLY HISTORY RECORD WORK SHEET

SHEET 15 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED / AHR SUPPLEMENT NO.
51200	003		

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
35700	22-74	INSTALL BENCH TEST COOLER PROBE		4/9/82		I 172
		INTO COOLER.	I 172			
		FAILURE REPORT	I 172	4/13/82	F/R 8117 & 8469	I 172
35711	22-74	COOL TO A CFPA TEMPERATURE OF		4/9/82	(.473 Run 2 ...)	I 172
		95 K FOR DIAGNOSTIC DATA	I 185			
		COLLECTION				
35712	22-13	CONNECT BAND 5 & BAND 7, &		4/9/82		I 172
		POST AMPLIFIER BOARDS AND	I 185			
		COLLECT A FULL SET OF				
		RADIOMETRIC DATA. DO NOT				
		USE B.B. SOURCE. D.C. OFFSETS,				
		W.B. NOISE AND SPOT NOISE (the				
		latter is optional) SHALL BE RECORDED				
		ON SPEC. 16192 DATA SHEET 12 (183)				
35713	22-13	DISCONNECT BAND 5/7 A/D BOX AND		4/9/82		I 172
		CONNECT THE RADIATIVE COOLER AS IN	I 185			
		THE T/V CHAMBER				

SB 0295B DEC 77

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SBRC	ASSEMBLY HISTORY RECORD WORK SHEET	SHEET 16 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED AHR SUPPLEMENT NO.
51200	003		

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
~~35805~~ 114	22-13	APPLY POWER AND OBSERVE THE BAND	AC	4/9/82		I 178
		5 AND BAND 7 D.C. OFFSETS &	I 180			
		NOISE VOLTAGES. RECORD TEST DATA				
		ON 16192 DATA SHEET 12, SHEETS				
		1 & 3.				
~~35806~~ 115	22-13	REMOVE THE PRE-AMPLIFIER HOUSING COVER				I 172
		AND THOROUGHLY INSPECT FOR DAMAGE	MJS	4/9/82		
		LOOSE CONNECTIONS OR ANY OTHER	I 180			
		ABNORMAL CONDITION.				
~~35807~~ 116	22-13	PROBE BAND 5 PRE-AMP BOARD AS				I 172
		REQUIRED TO DETERMINE FET-				
		SOURCE VOLTAGES. RECORD TERMINALS				
		PROBED BELOW. RECORD VOLTAGES				
		ON 16192 TEST SHEET #1				
	*	PROBED 128 PIN CONN. ALL PINS	CRL	4/9/82		
		EXCEPT 1, 8, 15, 16, 17, 22, 41, 44, 45, 46, 60,	I 180			
		61, 59. ALSO GND PLANE ADJACENT TO				

SB 0295B DEC 77

CONT. NEXT PAGE

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SBRC ASSEMBLY HISTORY RECORD WORK SHEET

SHEET 17 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
~~35808~~ 116	22-13	128 PIN CONN. ALSO BOTH SIDES OF P-1	I 180	4/9/82		I 172
~~35806~~ 117	22-13	USING THE BLACKBODY ILLUMINATE BANDS 5 and 7 AND OBSERVE THE PREAMPLIFIER OUTPUTS. RECORD DATA ON 16192 TEST SHEET 12 SHEETS 1 & 3.	NCD I 180	4/9/82		I 172
~~3540~~ 118	22-74	Warm CFPA to Rm Temp.	Weiner	4/9/82		I 172
~~3540~~ 119	22-74	Shut down B&C Vacuum System	Weiner	4/9/82		I 172
~~3577~~ 120		Measure DC offsets 3 5 & 7 per 16192 para 4.23	NCD	4/12/82		I 172
~~3572~~ 121		Measure Wide Band noise B 5 & 7 per 16192 para 48	NCD	4/12/82		I 172

SB 0295R DEC 77

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ASSEMBLY HISTORY RECORD WORK SHEET

SHEET 18 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
35 ~~43~~ 122		Measure transient response B5 & 7 per 17001 para. 4.3		4/12/82	172	
35 ~~44~~ 123		FPA REA review data		4/12/82	172	
35 ~~45~~ 124		Measure injected signal frequency response B5 per 16192 para 4.6		4/12/82	172	
35 ~~46~~ 125		Measure FET offsets per 16192 para		4/12/82	172	
35 ~~47~~ 126		Disconnect preamp output connectors, leaving wire-savers attached to cooler (J1, J2, & J3) Inspect connector pins for damage	MW	4/14/82 4/14/82	On connector J-2, pin N-2 of bread[illegible] to breakout box is pushed back. Wire saver OK.	
35 ~~48~~ 127		Remove bench cooler cooling head from rad cooler. Transport cooler to class 10,000 flow bench.	MW	4/14/82 4/14/82		172

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ASSEMBLY HISTORY RECORD WORK SHEET

SHEET 19 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED / AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
128 ~~35919~~		Remove cooler mounting platform used for TV test.	MW	4/12/82 4/12/82		I 172
129 ~~35920~~		Remove bands 5, 6 and 7 preamps output connector wear-savers. Inspect pins for damage.	MW	4/12/82 4/14/82	Preamps output conn. Band 5 (J-1) pin W-5 and pin K-1 found partially pushed. 4/13/82	I 172
130 ~~35921~~		Remove heater-sensor cable wear-saver and inspect pins for damage	MW I	4/14/82 4/12/82		
131 ~~35922~~		Remove socket-head cap screws which secure ribbon cable input connectors to preamps (J1, J2 & J3)	MW	4/14/82		I 172
132 ~~35923~~		Disengage ribbon cable connector from preamps and inspect pins for damage.	MW I 178	4/12/82 4/12/82		I 172

SB 0295B DEC 77

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ASSEMBLY HISTORY RECORD WORK SHEET

SHEET 20 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
133 ~~35924~~		Remove preamps from cooler	[illegible]	4/12/82		I 172
134 ~~35925~~		Assemble connector mounting fixture to cooler flex 51200 (P/N 75788)	[illegible]	4/13/82		I 172
135 ~~35926~~		Assemble bands 6 and 7 connectors to fixture. Install shorting conn.	[illegible]	4/13/82		I 172
136 ~~35927~~		Assemble band 5 connector, and 76785 breakout box to connector mounting fixture.	[illegible]	4/13/82		I 172
137 ~~35928~~		Transport cooler/breakout box assy to clean room and set up for bench cooling.	[illegible]	4/13/82		I 172
138 ~~35929~~		Purge dewar with GN_2 for 30 min	[illegible]	4/13/82		I 172

SB 0295B DEC 77

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ASSEMBLY HISTORY RECORD WORK SHEET

SHEET 21 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
139 ~~35930~~		Cooldown CFPA to ~95K in preparation for data collect.	MW	4/13/82		I 172
140 ~~35931~~		Perform injected signal test on all channels of band 5. Attach data to this comment sheet. AND FET OFFSET MEASUREMENTS	CRL	04/13/82		I 172
141 ~~35932~~		PERFORM OP. No. 35931 (ABOVE) FOR BAND 7.	CRL	04/13/82		I 172
142 ~~35933~~		Remove Bench Cooler cooling head and disconnect heater/sensor breakout box. Transport to class 10,000 flow bench	MW	4/13/82		172
143 ~~35934~~		Disassemble 74785 band 5 or 7 breakout box from connector mounting fixture. Temporarily replace shorting connector to band 7.	MW	4/13/82		I 172

SR 02953 DEC 77

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SBRC	ASSEMBLY HISTORY RECORD WORK SHEET	SHEET 22 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED / AHR SUPPLEMENT NO.
51200	003		

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
144 ~~35235~~		Disassemble bonds 5 and 6 ribbon cable connectors from connector mounting fixture. Temporarily replace shorting connectors.	mmc	4/13/82		1 / 172
145 ~~35237~~		Disassemble connector mounting fixture from cooler.	mmc	4/13/82		1 / 172
146 ~~35237~~		Assemble 50980 preamp assy to cooler using 4 #10 socket head cap screws, non-flight. Torque ~~[illegible]~~ snug-tight.	CS	4/14/82		1 / 17
147 ~~35233~~		Install connectors into cooler mount ring using non-flight screws. Torque snug.	CS	4/14/82		1 / 17
148 ~~35237~~		Engage bonds 5, 6 and 7 ribbon cable connector to preamp. Torque connector holding screws snug.	CS	4/14/82		1 / 17

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SBRC	ASSEMBLY HISTORY RECORD WORK SHEET	SHEET 23 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED AHR SUPPLEMENT NO.
51200	003		

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
~~35~~ 149		Install wear savers on output	[illegible]	4/14/82		172
		connectors of boards 5, 6 and 7,	[illegible]	4/14/82		
		and heater/sensor cable.				
		Note: Use a new set of				
		wear savers for boards 5 and				
		7 - do not use the same as for				
		previous bench cooler and TV				
		tests. Return old wear-savers				
		to Bert Brown for inspection				
~~35~~ 150		Transport cooler/preamp assy	[illegible]	4/14/82		172
		to clean room and set-up				
		for bench cooling.				

SB 0205 DEC 77

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ASSEMBLY HISTORY RECORD WORK SHEET

SHEET 24 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED / AHR SUPPLEMENT NO.
51200	003		

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
151 ~~3592~~		Purge dewar with GN_2 for 30 min	CS	4/14/82		172
152 ~~3593~~		Cooldown CFPA to ~ 95K in preparation for data collect	CS	4/14/82		172
153 ~~3594~~		PERFORM ELECTRICAL CHECK ON BAND 5 & BAND 7 TO OBTAIN PRE AMP D.C. OFFSET, SIGNAL & WIDEBAND NOISE, AND POST AMP SIGNAL, AND WIDEBAND NOISE. RECORD DATA ON 16192 DATA RECORD 12 SHEETS 1 & 3.	NCJ III	4/14/82		172
154 ~~3595~~		OBTAIN PHOTOGRAPHS OF TRANSIENT RESPONSES FOR BANDS 5 & 7	NCJ III	4/14/82		172
155 ~~3596~~		CHANGE BAND 5 WEAR ADAPTOR. REPEAT PREAMP D.C. OFFSET, W.B. NOISE & POST AMP W.B. NOISE. RECORD 16192 TEST SHEET 12 (1 OF 3)	NCJ III	4/14/82		172

SB 0295B DEC 77

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ASSEMBLY HISTORY RECORD WORK SHEET

SHEET 25 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED / AHR SUPPLEMENT NO.
51200	003	COOLER ASSY	

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
35156	22-74	REMOVE BENCH TEST CRYOSTAT	MMR	4/15/82		4/15/82 172
		AND BREAK DOWN BENCH TEST				
		SET UP TO ALLOW REMOVAL OF				
		PREAMPL DECK				
35157	22-74	TRANSPORT COOLER ASSY FROM	MMR	4/15/82		4/15/82 172
		CLEAN ROOM TO FLOW BENCH				
		CLASS 10,000 CLEAN AREA				
35158	51-41	INSPECT FLOW BENCH FOR	MMR	4/15/82		4/15/82 172
		STATIC SENSITIVE PER NOTE 24.				
35159	22-74	REMOVE CONNECTORS A3J1, A3J2 AND	MMR	4/15/82		4/15/82
		A3J3 FROM MOUNTING RING OF ITEM 10.				
		CAUTION: HANDLE PER SP80113				
35160	82-74	DISCONNECT FLEX CABLES CONNECTORS				4/15/82
		FROM PREAMP AND REMOVE	MMR	4/15/82		
		PREAMP BY REMOVING HARDWARE, SIX PLACES.				

SB 1295B DEC 77

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ASSEMBLY HISTORY RECORD WORK SHEET

SHEET 26 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED / AHR SUPPLEMENT NO.
51200	003	COOLER ASSY	

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
35161	22-74	REMOUNT FIXTURE 25788 TO ASSY AND MOUNT BANDS 5, 6 & 7 CONNECTORS TO THE FIXTURE AS SHOWN ON SHT 3 OF 51200. PERFORM OPER 35163. 1ST	MMW	4/15/82		
35162	~~22-74~~	~~INSTALL SHORTING SCREWS ITEM 22, TO REMAIN SEEN SHOWN IN SECTION H-H, 8 PLCS.~~			N/A BENCH TEST WILL FOLLOW THIS REWORK	4/15/82
35163	22-74	DISASSEMBLE AMBIENT COVER ITEM 5, BY REMOVING HARDWARE ITEMS 18 & 30, EIGHTEEN PLACES.	MMW	4/15/82		172
3516A	22-74	CAREFULLY REMOVE PLASTIC STRIPS ITEM 33, NINE PLCS, TO ALLOW REMOVAL OF INTERMEDIATE COVER SHOWN IN VIEW A-A, SHEET 2	MMW	4/15/82		172

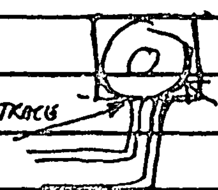
SR 0295B DEC 77

ORIGINAL PAGE IS OF POOR QUALITY

SBRC ASSEMBLY HISTORY RECORD WORK SHEET — SHEET 27 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED / AHR SUPPLEMENT NO.
51200	008	COOLER ASSY	

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
35165	22-74	DISASSEMBLE INTERMEDIATE COVER,	MAW	4/15/82		
		ITEM 7, BY REMOVING SCREWS, ITEM 30				
		12 PLCS, SHOWN ON SHT 2, SECTION C-C.				
35166	22-74	INVESTIGATE THE CAUSE OF F S8106		4/15/82		
	22-31	BY EXAMINING SUBJECT CABLE CONNECTOR				
	51-41	AND ROUTING.				
3516[illegible]		INSPECTION OF THE SOLDER LEADS		4/16/82	WAIVER W-149	
		ABOVE HAVE FOUND THE FOLLOWING	ACCEPT PER WAIVER 149			
		DISCREPANCIES				



* OPEN TRACE

OPEN GAP BETWEEN PAD AND CIRCUIT BY SOLDER WICKING SIDEWALK THRU COPPER CIRCUIT.

* BETWEEN PAD AND CIRCUIT

4-16-82

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SBRC ASSEMBLY HISTORY RECORD WORK SHEET — SHEET 28 OF

PART NUMBER	SERIAL OR LOT NUMBER	ASSEMBLY NAME	PART OF: AHR DATED / AHR SUPPLEMENT NO.
51200	003	COOLER ASSY	

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL
35KB	22-74	REMOVE COLD STAGE COVER	CS	4/17/82		72
		FROM ASSY BY REMOVING				
		12 SCREWS ON OUTER PARIMETER				
		AND 3 SCREWS TO CFPA.				
		PROCEED TO AHR SUPPLEMENT				
		NO. 2 TO PART III DATED				
		4-17-82				

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SB 0295B DEC 77

AHR DATED
AHR SUPPLEMENT NO.

OPER NO.	S/C NO.	INSTRUCTIONS, COMMENTS, TEST DATA, ETC.	OPERATOR OR INSP	DATE	DISPOSITION	APPROVAL

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